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A Quarterly Journal of Ornithology

Editor
WITMER STONE

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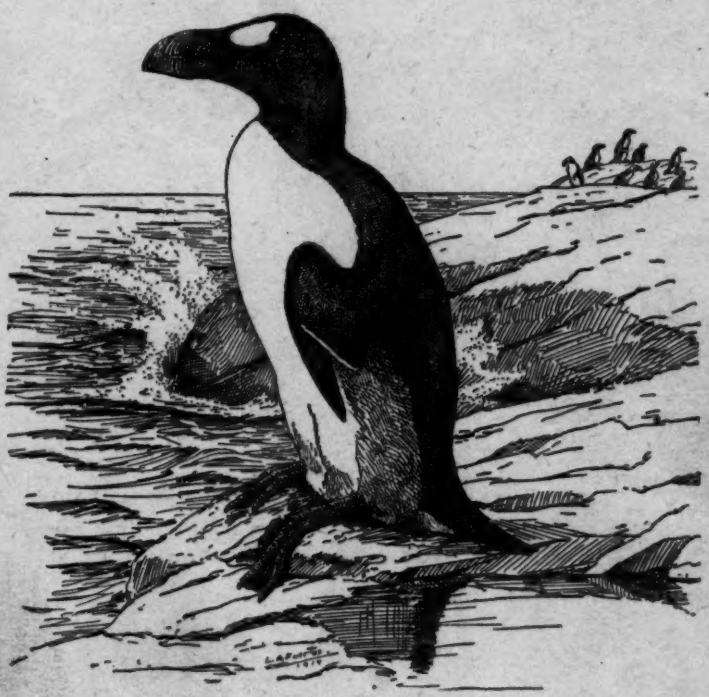

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(a) South of Galatin, Illinois. June 6, 1907. Five Eggs.
(b) Atwood, Douglas Co., Illinois. August 12, 1918. Four Eggs.

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THE DICKCISSEL (SPIZA AMERICANA) OF THE ILLINOIS PRAIRIES.

BY ALFRED O. GROSS, PH. D.

Plates I–IV.

I. INTRODUCTION.

To one who journeys along the dusty roads of Central Illinois on a hot summer day, there is nothing that relieves the quiet monotony of the sunny open landscape more than the earnest, incessant calls of the Dickcissel. Even the farmer and the layman, whose chief interests may be in the dollars and cents of the productive grain fields, cannot fail to have their attention attracted by this bird as it loudly and lustily announces its presence. The clear accented notes of the monotonous song at once suggest the bird's common name—Dickcissel. In the middle west it is popularly and generally known as the "Little Meadowlark," a name that has arisen because of its resemblance in miniature to the common Meadowlark. Indeed, some very intelligent farmers believe the Dickcissels to be merely small individuals of the larger and well known bird. The name Black-throated Bunting, so often met with in the writings of the older authors, is now less used by bird students. By the typical westerner who knows the Dickcissel intimately, he is often referred to as "Dick."

The Dickcissel contributes not only its beauty and song to its environment but does its bit in the economy of nature by consuming scores of destructive insects, as well as hundreds of seeds of obnoxious weeds, harmful to the crops. In Central Illinois where the Dickcissel is at its best, it ranks among the most abundant and important birds from an economic point of view. The ornithological writings contain many notes pertaining to the distribution of the Dickcissel, but very little has been contributed on the life history of this interesting and important bird, which deserves better and more general recognition. For this reason the author feels that no apology is necessary in presenting the results of this study.

Most of the notes on the life history, behavior, etc., were obtained from a study of birds and nests found on the farm of C. W. Wilson, and adjoining farms, near the village of Atwood, Douglas County, Illinois, during the summer of 1918. Records made by the author while conducting the field work of a statistical bird survey of Illinois in 1906–1907 and 1909 are also included.

The author wishes to express his thanks to Prof. S. A. Forbes for the use of the Illinois State Laboratory records, from which the statistical tables in the third division of this paper were compiled; to Prof. Frank Smith, of the University of Illinois, and to Mr. T. E. Musselman, of Quincy, Illinois, for the use of their excellent records of migrations; to Mr. E. R. Kalmbach, of the U. S. Bureau of Biological Survey, and Mr. A. N. Caudell, of the U. S. Bureau of Entomology, for the determination of plant and animal matter found in the stomachs and crops of the birds; to the Museum of Comparative Zoölogy, Cambridge, for the loan of its series of Dickcissel skins; and to Dr. E. L. Mark for reading and correcting the manuscript.

II. GEOGRAPHICAL RANGE.

The nesting range of the Dickcissel is now limited chiefly to the region of the middle west between the Alleghanies and the Rocky Mountains and from Michigan[1, 2] Wisconsin,[3] Minnesota,[3, 4] and

[1] Gibbs, Dr. Morris. 1879, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 487.

[2] Barrows, W. B. 1912. Michigan Bird Life, pp. 537–539.

[3] Cooke, W. W. 1888, U. S. Dept. of Agr. Bull., no. 2, pp. 220–221.

[4] Roberts, T. S., and Benner, F. 1880, Bull. Nutt. Orn. Club, vol. 5, p. 15.

North Dakota,[5, 6] south to Alabama,[7] Mississippi,[8] Louisiana,[9, 10] and Texas[11, 12, 13, 14] casually straying as far west as Arizona,[15, 16, 17] New Mexico and California.[17] There is a nesting record as far north as Point Pelee, Ontario, June 1, 1884,[18] but I know of no recent reports of this bird breeding north of the 47th parallel and nests above 43° latitude are rare. Audubon[19] in 1838 stated that the Dickcissel was rare in Ohio and scarce in Kentucky, but today it is not uncommon in the western sections of these two states. Prof. A. B. Brooks reports seeing a pair of Dickcissels on July 5–8, 1907, at Buchannon, Upshur County, West Virginia. It is now abundant and, according to numerous reports, is apparently becoming more so throughout Indiana, Illinois, Missouri, Iowa, Kansas, Nebraska and South Dakota. It breeds in the plains east of the mountains of Colorado[20, 21] and Wyoming.[17] One pair of supposedly breeding birds has recently been reported from Wahpeton, North Dakota.[6]

In the time of Alexander Wilson[22] the Dickcissel was a common summer resident east of the Alleghany Mountains and even in the latter part of the nineteenth century, not more than thirty to forty years ago, there were many records of its occurrence and of its nesting along the Atlantic seaboard. Its breeding range extended from South Carolina[23] up through Pennsylvania,[19, 24, 25]

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[5] Allen, J. A. 1874, Proc. Bost. Soc. N. H., vol. 17, pp. 12, 29 and 59.

[6] Jensen, J. K. 1918, Auk, vol. 35, p. 348.

[7] Golsan, L. S., and Holt, E. G. 1914, Auk, vol. 31, p. 229.

[8] Hay, O. P. 1882, Bull. Nutt. Orn. Club, vol. 7, p. 92.

[9] Allison, A. 1904, Auk, vol. 21, pp. 472–484.

[10] Kopman, H. H. 1915, Auk, vol. 32, p. 28.

[11] Dresser, H. E. 1865, Ibis, vol. 1, new series, p. 490.

[12] Attwater, H. P. 1892, Auk, vol. 9, p. 339.

[13] Sennett, Geo. B. 1879, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 392.

[14] Simmons, G. F. 1915, Auk, vol. 32, p. 329.

[15] Henshaw, H. W. 1873, Rep. Orn. Spec. Wheeler's Survey, p. 119.

[16] Scott, W. E. D. 1887, Auk, vol. 4, pp. 196–205.

[17] Bailey, F. M. 1904, Handbook of Birds of Western U. S., p. 377.

[18] Saunders, W. E. 1885, Auk, vol. 2, pp. 307–308.

[19] Audubon, J. J. 1838, Ornith. Biog., vol. 4, pp. 579–580.

[20] Cooke, W. W. 1898, Bull. Colo. Agric. Col., p. 167.

[21] Ridgway, R. 1873, Bull. Essex Inst., vol. 5, pp. 183–195.

[22] Wilson, A. 1811, Amer. Ornith., vol. 3, p. 86.

[23] Loomis, L. M. 1885, Auk, vol. 2, p. 192; and 1891, Auk, vol. 8, p. 168.

[24] Rhoads, S. N. 1903, Cassinia, VIII, pp. 17–28.

[25] Trotter, S. 1879, Bull. Nutt. Orn. Club, vol. 4, p. 235.

New Jersey[24, 26, 27] and New York[28, 29, 30] to Rhode Island[31] and Massachusetts.[19, 32, 33, 34] Stragglers of the Dickcissel have been collected as far south as Florida[35, 36] and as far north and east as New Hampshire,[40] Maine,[37, 38, 39] and Nova Scotia.[41] The last record of its nesting east of the Alleghanies, so far as I know, is that of W. DeW. Miller,[26] who found a nest at Plainfield, New Jersey, on July 3, 1904. The Dickcissel now seems destined to become eliminated as a breeding bird in the eastern section of its former range if it is not so already. S. N. Rhoads,[24] in his very interesting historical account of the Dickcissel, does not attempt to offer a final solution of this remarkable and puzzling change in the limits of the Dickcissel's distribution, but he offers some interesting suggestions on the subject. Some ornithologists are inclined to doubt whether the Dickcissel was as abundant in the eastern United States as the writings of the older authors would lead us to believe.

The winter range of the Dickcissel extends as far south as northern South America (Colombia and Trinidad Island). Its migration is made through Mexico and Central America but there are occasional records of migration by way of Swan Island in the Caribbean Sea, and even as far east as Jamaica.

III. Abundance and Distribution of the Dickcissel in Illinois.

In marked contrast to its status in the eastern section of its former range, this bird is, as I have said, apparently becoming more abundant in the middle west. In comparing the older with

[26] Miller, W. DeW. 1904, Auk, vol. 21, p. 487.
[27] Chapman, F. 1891, Auk, vol. 8, p. 395.
[28] Dutcher, W. 1893, Auk, vol. 10, p. 276; and 1889, Auk, vol. 6, p. 137.
[29] Dwight, J., Jr. 1897, Auk, vol. 14, p. 95.
[30] Johnson, F. E. 1891, Auk, vol. 8, p. 116.
[31] Robinson, W. 1889, Auk, vol. 6, p. 194.
[32] Purdie, H. A. 1878, Bull. Nutt. Orn. Club, vol. 3, p. 45.
[33] Brewer, T. M. 1878, Bull. Nutt. Orn. Club, vol. 3, p. 190.
[34] Deane, R. 1879, Bull. Nutt. Orn. Club, vol. 4, pp. 122–123.
[35] Beckham, C. W. 1882, Bull. Nutt. Orn. Club, vol. 7, p. 250.
[36] Scott, W. E. D. 1889, Auk, vol. 6, pp. 318–326.
[37] Knight, Ora W. 1897, Bull. Univ. Maine, no. 3, p. 103.
[38] Townsend, C. W. 1885, Auk, vol. 2, p. 106.
[39] Norton, A. H. 1893, Auk, vol. 10, p. 302; and 1894, vol. 11, pp. 78–79.
[40] White, F. B. 1919, Auk, vol. 36, p. 288.
[41] Dwight, J., Jr. 1903, Auk, vol. 20, p. 440.

the more recent records of abundance, this increase is especially noticeable in the northern section of Illinois, as well as along the northern limits of its present range. Unfortunately, there is a personal factor to be reckoned with in considering the records of general abundance by different authors, so that comparisons thus made are often misleading. Furthermore, students of birds may report a bird as common or abundant when their information is based on general impressions received from a study of one or of a limited number of localities. It may be that little or no thought is given to the abundance or density of the species as compared with all the species of birds which occur in the entire region considered. To say that the Dickcissel is common means one thing to one observer and something else to another. There is urgent need for more specific information on this important matter in relation to all our birds. It is to Prof. S. A. Forbes, of the Illinois State Laboratory of Natural History, that we are indebted for planning and carrying out the statistical ornithological survey of Illinois, the first survey of its kind ever made for any extensive area. The details of the methods employed by Professor Forbes, as well as some of the more general results obtained, may be learned by referring to his two preliminary reports: 'An Ornithological Cross-section of Illinois in Autumn,'[45] and 'The Mid-summer Bird Life of Illinois: A Statistical Study.'[46]

For purposes of this paper only the work accomplished by the survey during the summer months, when the Dickcissel was present, will be considered. For convenience, the state was divided into three sections: northern, central, and southern. In each section a locality, comprising several counties, typical for that part of the state, was selected and trips were made on foot in various directions. Accompanied by an assistant the author of this paper, who had charge of the field work, traveled through the fields and noted as he went the species and number of birds flushed on a strip fifty yards in width, including those flying across the strip within one hundred yards to the front. A record was also kept, by means of pedometers and mechanical counters, of the distances traveled over each area. When all the records

[45] Forbes, S. A., 1907, Bull. Ill. State Lab. Nat. Hist., VII, pp. 305–335.
[46] Forbes, S. A., 1908, Amer. Nat. 42, pp. 505–519.

were accumulated and tabulated it was a simple matter to ascertain the relative abundance and density of each species for each kind of crop and area and for the state as a whole. While the data are not yet sufficient in amount to yield absolute results in all cases, they do provide by far the most reliable statistics in existence concerning the abundance of the common birds of the Illinois fields.

In 1907, a month was spent in each of the three sections of the state: June in southern, July in central, and August in northern Illinois. For many birds the observations were made at a time when their population was comparatively stable and not greatly affected by migratory movements. By beginning in the south and ending in the north the differences, due to changing conditions, were reduced but not entirely eliminated. In 1909 the work was repeated with an effort to avoid the disturbing factor of seasonal variation by spending only about ten days at a time, instead of a month, in each section. Thus every section was visited each month and therefore in its turn three times during the summer.

The following tables, I and II, containing the general statistics for the summers of 1907 and 1909, respectively, are intended to serve as a means of comparing the work of the survey of the two summers, and especially that relating to the Dickcissel.

TABLE I.

GENERAL STATISTICS ILLINOIS BIRD SURVEY—SUMMER, 1907.

Section	Time	Acres on which birds were counted	No. of birds counted on 50-yd. strip	No. of species	No. of Dickcissels counted on 50-yd. strip	No. of Dickcissels per square mile	Order of Dickcissel abundance
Northern Illinois	July 29–Aug. 23	3172	3026	66	53	10.69	16th
Central Illinois	July 9–July 24	2117	2047	49	136	41.12	5th
Southern Illinois	June 4–July 1	2504	2667	70	204	52.14	4th
Totals		7793	7740	85	393	32.2	5th

TABLE II.

GENERAL STATISTICS ILLINOIS BIRD SURVEY—SUMMER, 1909.

Section	Time	Acres on which birds were counted	No. of birds counted on 50-yd. strip	No. of species	No. of Dickcissels counted on 50-yd. strip	No. of Dickcissels per square mile	Order of Dickcissel abundance
Northern Illinois	June 30–Sept. 15	4794	7647	71	96	12.83	5th
Central Illinois	June 22–Sept. 4	3807	6368	67	147	24.72	5th
Southern Illinois	June 8–Aug. 26	3023	3973	81	110	23.28	7th
Totals		11624	17988	117	353	18.9	11th

The statistics of the above tables give us concrete evidence of the great abundance of the Dickcissel and emphasize the importance of the species in the economic ornithology of the middle west. In 1909, out of 85 species recorded for the whole state, the Dickcissel ranked fifth in the abundance of individual birds, and in 1909, among the 177 species observed, it stands eleventh. According to these data there are, during the summer months in the 56,000 square miles of the state, more than a million Dickcissels busily engaged in protecting valuable crops from the devastating grasshoppers. Surely such an army of useful workers is not to be ignored in these strenuous times of conservation.

The density of the Dickcissel population of southern Illinois is practically the same as it is in the central part of the state; whereas in the northern third of the state the number of Dickcissels per square mile is very much less. This marked difference is correlated with the fact that northern Illinois, about 42° lat., is near the northern limit of the summer range of this bird.

The following table, No. III, gives one an insight into the distribution of the Dickcissel on the various crops. The table includes those areas on which twelve or more of the birds were

counted, arranged in order, beginning at the left with the one which contained the largest number of Dickcissels per square mile.

TABLE III.

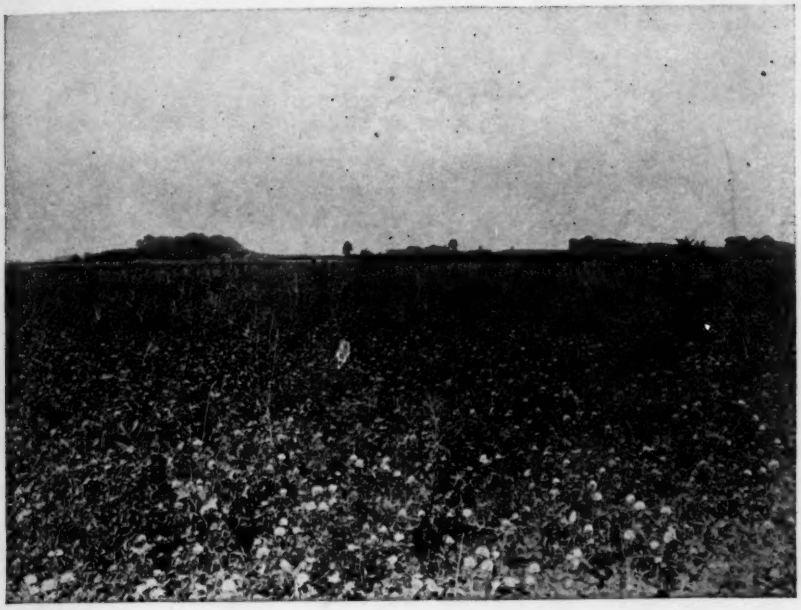
CROPS AND AREAS OF ILLINOIS ON WHICH AT LEAST 12 BIRDS WERE SEEN WITHIN THE 50-YARD STRIP—SUMMER, 1909.

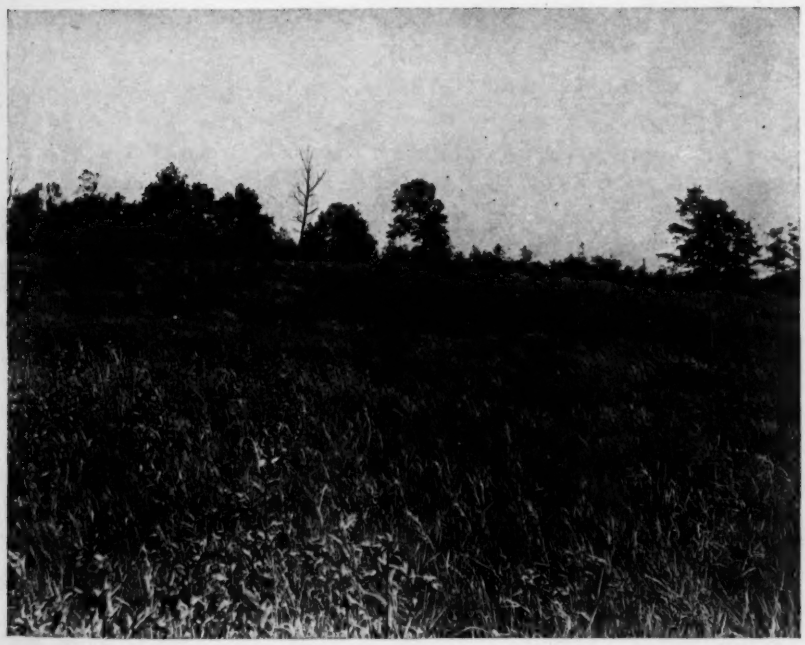
Crops	Meadow	Waste and Fallow	Oats	Wheat and Rye	Pasture	Corn
Acres	1501.35	423.96	1166.02	385.81	2265.57	3941.51
Miles (linear)	82.85	23.37	64.14	21.22	124.69	216.81
Square miles	2.339	.668	1.822	.609	3.530	6.151
All birds seen within 50-yd. strip	2113	464	1022	452	4228	4789
Dickcissels	190	23	39	12	44	32
Percentage of Dickcissels among all birds seen	8.94	4.95	3.81	2.65	1.04	.066
Dickcissels per sq. mile	81.2	34.4	21.4	19.7	12.4	5.2

The above table shows the Dickcissel to be preeminently a bird of the meadows, where, for the state as a whole, its concentration is 81.2 birds to the square mile. It is attracted to the meadows not only by the many grasshoppers and other insects found there, which supply much of its sustenance, but also by the dense low vegetation, which provides nesting sites well adapted for the type of nest built by the Dickcissel. Those meadows which have the densest growth, such as clover and alfalfa, are preferred to those of timothy or other grass.

The pastures, though presenting conditions similar to those of meadows, were found to contain a Dickcissel population of only about twelve to the square mile. This much smaller number in pastures is to be explained not by the difference in the character of the vegetation but by the continual disturbance which the nesting birds receive from the grazing stock.

The waste and fallow ground areas, which rank next to the meadows in numbers of Dickcissels per square mile, have a vege-





HABITATS OF THE DICKCISSEL.

(a) Clover Field on a Middle West Prairie. Near Lincoln, Logan Co., Illinois. July 16, 1907.

(b) Timothy Field. Near Benton, Franklin Co., Illinois. June 4, 1907.

tation favorable for attracting these birds and are situations least disturbed, for here not even the plow and the devastating mower or binder ever bring the home life of the birds to a sudden and disastrous ending.

In the grain fields the Dickcissel is present in numbers intermediate between those of the meadows and pastures. The number found per square mile on oats is practically the same as that on the wheat and rye fields.

Of all the areas listed in the table, the cornfields, as one might anticipate, contain the lowest density of Dickcissel life, because they provide neither food nor favorable nesting sites to lure the Dickcissels from other fields. Furthermore, the period of cultivating the soil coincides with the early part of the nesting season of the Dickcissel so that any nests built in cornfields would certainly be destroyed. The small number of these birds found in cornfields, only five to the square mile, were there accidentally. It was not uncommon to find that the cornstalks bordering meadows were used as the favorite alighting places for the singing males, as well as vantage points for the female in approaching her concealed nest. All birds thus seen within the fifty-yard strip were of course included in the count for the cornfields. A most significant fact is that only 6/100 of one per cent. of all the birds seen in the cornfields were Dickcissels; whereas, in meadows they comprised almost nine per cent. of the total bird population.

Other areas in which the Dickcissel was recorded, but in numbers too small to be included in Table III, are as follows: Swamp 3; Shrubbery 3; Gardens 3; Timber 3; and Orchards 1.

No Dickcissels were observed in house or barn yards, in plowed ground or stubble fields.

The following Table IV is a list of the twelve most abundant birds, observed during the summer survey of 1909, arranged in order beginning with the one represented by the largest number of individuals. It will aid the reader in realizing the numerical position of the Dickcissel among the abundant birds of Illinois. These twelve birds, of which the Dickcissel is the eleventh, comprise more than 76 per cent. of the total bird population of the state and hence are the species which deserve most attention when considering the economic ornithology of the middle west

states. The figures were obtained in the same manner described in connection with the earlier tables.

TABLE IV.

THE TWELVE COMMONEST BIRDS WITH THE NUMBERS OF EACH SPECIES SEEN WITHIN THE FIFTY-YARD STRIP ON ALL AREAS INCLUDED IN THE SURVEY OF THE STATE—SUMMER, 1909.

Order of abundance	Common name	Total no. seen
1	English Sparrow	4239
2	Bronzed Grackle	2455
3	Cowbird	1845
4	Meadowlark	1434
5	Mourning Dove	670
6	Bobolink	631
7	Red-winged Blackbird	573
8	Flicker	419
9	Robin	417
10	Prairie Horned Lark	414
11	Dickcissel	353
12	Crow	287
	Total	13737

Two characteristic habitats of the Dickcissel are shown in Plate II. The clover field photographed July 16, 1907, near Lincoln, Logan County, Illinois, one of the last in the vicinity to be harvested, was virtually alive with birds. The author located seven nests of the Dickcissel containing eggs or young in this field and there were many young birds in juvenal plumage seen perched on the Canada thistles and other weeds. In addition to the Dickcissel nests there were two nests of the Grasshopper Sparrow, one of the Vesper Sparrow, two of the Meadowlark, and one of the Upland Plover. Other birds found in the same ecological association were the Bob-white, Prairie Hen, Mourning Dove, Flicker, Prairie Horned Lark, Cowbird, Bronzed Grackle, Goldfinch, and English Sparrow.

The timothy field was photographed June 4, 1907, near Benton, Franklin County, in southern Illinois. Such fields, though

not as often selected as clover fields for a nesting site, harbor a large number of Dickcissel homes. In this field the author found two Dickcissel nests, one Meadowlark nest and a Quail nest containing sixteen eggs. The nests of the Dickcissel were concealed and protected by dew-berry vines in addition to the rank growth of grass. In the woods and shrubbery seen in the background of this view were Mourning Doves, Yellow-billed Cuckoos, Phoebes, Field Sparrows, Bachman's Sparrows, Scarlet Tanagers, Mockingbirds, Brown Thrashers and Carolina Wrens.

IV. MIGRATION.

The first male Dickcissels make their appearance in central Illinois about the last week of April or the first week of May. The females usually come about a week later, but the bulk of individuals are seldom seen until after the middle of May.

The following "first seen" records were made at Urbana, in east central Illinois by Prof. Frank Smith and others, during the past eighteen years. Field trips were made practically each day during the spring migrations, so that these records represent an accurate series of dates of the first appearances of the male birds. The average date of these eighteen years is May 3.

1901	May 7	1911	April 29
1902	May 2	1912	May 2
1903	May 16	1913	May 4
1904	May 5	1914	April 28
1905	May 11	1915	April 28
1906	May 5	1916	May 5
1907	May 5	1917	April 24
1908	April 25	1918	May 2
1909	April 29		
1910	May 10		

The following records from Quincy on the Mississippi River, the extreme western side of the State, were made by Mr. T. E. Musselman:

1910	April 30	1916	April 30
1911	April 21	1917	May 6
1912	April 25	1918	May 5
1913	April 28		

The average of the above dates of the first arrivals at Quincy is April 29—four days earlier than the average of those made at Urbana. If it is true that the vanguard of the birds which constitute the migration waves follow the large river courses, then the earlier dates at Quincy may be correlated with the fact that the city is situated on the Mississippi River, the main immigration route of the middle west.

Records of the spring migration of the Dickcissel made by Prof. Gates at Carthage College, Carthage, Illinois, show an average date of several days later than those at Quincy, Illinois. Although only forty miles north of Quincy, this place is near the headwaters of a stream tributary to the Illinois, therefore migration requires a longer time.

The fall migration of the Dickcissel has been given but scant attention by observers in central Illinois. The silent departure of these birds in autumn is nevertheless quite as interesting as their more heralded coming in the springtime. In August, at the close of the nesting season, the Dickcissels rove about for a short time as family groups, these soon unite with others, which in turn may join still larger aggregations to form roosts of several hundred individuals. In 1908 a roost which contained considerably more than 300 birds on August 20 had very few representatives on September 1, and by September 10 all had left, presumably for the southland. A roost under observation during the summer of 1918 was located along the banks of a large drainage ditch, the sides of which, for a distance of nearly a mile, were covered with giant rag-weeds and horse-weeds eight to ten feet in height. Although it is excessively hot and dry at this season of the year, the ditch contained cool refreshing water. This attractive feature, together with the admirable concealment and roost provided by the tall weeds, made an ideal concentration center for many Dickcissels. A few could be seen feeding on the seeds of the weeds or bathing in the water at almost every hour of the day, but the mass of individuals came in at twilight between sunset and dark. On August 5 there were only about fifty birds, on August 8 about 125, but August 10, 485 Dickcissels, adults and young, were counted and doubtless more than twice that number of birds were concealed by the dense growth of weeds

and thus escaped being seen. By August 15 there was a very perceptible diminution in the numbers at the roost and there is every reason to believe the fall migration had then begun. I was obliged to leave Illinois at this time, so records of the latest appearances at this roost were not made.

Most of the Dickcissels are gone from central Illinois by September 10 to 15, but some stragglers may linger several days longer. The latest record that I have is of a young male bird collected October 2, 1907.

V. DESCRIPTIONS AND MEASUREMENTS OF ADULT BIRDS.

The specimens of Dickcissels, upon which the following descriptions and measurements are based, were collected near Atwood, Illinois, during the summer of 1918. The colors were determined with the use of Ridgway's 'Color Standards and Nomenclature.' The numbers and letters following the names of the colors refer to the hue and tone respectively. The colors here given are at best approximations.

Nuptial plumage (*adult male*).—The top of the head, back and sides of the neck, lores and auriculars pale neutral gray (69''''d); crown and forehead tinged with olive-ocher (21''a), an amber yellow (21'b) line over the eye which becomes white posteriorly; back mouse gray (15''''a) tinged with cinnamon-drab (13''''a) and streaked with black; rump and tail coverts smoke gray (21''''d)* without streaks; lesser and middle wing coverts, cinnamon-rufous (11'i); edge of wing, empire yellow (21'b); secondaries, primaries and rectrices, fuscous (13''''k) and narrowly edged with pale mouse gray (15''''d); malar stripe, amber yellow (21'b) anteriorly, broadening posteriorly into a white area on either side of a black throat patch; chin white; breast wax yellow fading to pure white on the belly and under tail coverts; mandibles dusky slate-blue (40'''m); the legs and feet Prout's brown (15'm); iris dark brown. (In male specimens in the nuptial plumage collected June–July there is a small black patch of variable size near the middle of the yellow breast and in all except one this spot is completely separated from the black area of the throat.)

* *Cf.* Color numbers in Ridgway's 'Nomenclature.'

Nuptial plumage (*adult female*).—The upper parts of the female are similar to those of the male, but the gray is represented by shades of brown; crown with fine black streaks and with very little yellow; the general coloration very much duller, especially the rufous of the wings and the yellow of the breast, which are much reduced in amount as compared with the male; in three specimens the rufous of the wings is practically absent, being instead gray and fuscous, the coverts being fuscous with only a few of the feathers margined with cinnamon-rufous (11′i); chin and throat white; pronounced black lateral chin stripes bordering the maize yellow (19f) malar stripes; (in six females the black throat patch, so conspicuous in the male, is entirely lacking but in one adult female taken August 2 there is a reduced patch of chaetura black (17′′′′m) on the throat which connects on either side with the lateral throat stripes); in all specimens, the straw yellow (21′d) breast finely steaked with dark brown; flanks white, washed with avellaneous (17′′′b) and finely streaked with fuscous or brown; the primaries, secondaries, tail, bill and legs similar to the male. (The females collected during the late summer toward the close of the nesting season have a plumage that is very soiled and worn; the barbs of the outer tail feathers of some of the females collected in August were completely worn off, leaving nothing but the naked shafts. The plumage of the male is only slightly worn because his part in the rearing of the brood is small, as we will see in the next chapter.)

Adult winter plumage (*male*).—(This description is based on four specimens collected in Illinois during the first week of August, 1918, three specimens collected during the last week of August, 1908, at Matamoros, Mexico, and another collected at Bolson, Costa Rica, December 13, 1909. Two of the birds collected in Illinois are in a transitional state of the post-nuptial moult, but the others have acquired the complete winter plumage.) This plumage is similar to the nuptial plumage but the entire coloration is very much brighter and the bands and patches of colors more sharply differentiated. The gray of the pileum and neck of the nuptial plumage is replaced by a rich dark olive-brown (17′′′k); back snuff brown (15′′k) streaked with black; the rufous of the lesser and middle wing coverts a deep chestnut (9m) color; greater

wing coverts broadly edged with mikado brown (13″i) instead of gray as in the nuptial plumage; white edgings of the primaries very prominent; the yellow of the breast is more extensive anteriorly and posteriorly, even the middle of the belly being tinged with yellow; the yellow of the breast approaches cadmium yellow (17a); chin tinged with cream color (19′f); supercilliary and malar stripes light cadmium (19a); the posterior part of the supercilliary stripe light yellow and not white as in the nuptial plumage; the black throat patch reduced in size and is more or less obscured by pale cream tips of the feathers; no traces of black on the lower breast; auriculars and flanks plain olive-brown (17‴m); crissum or under tail coverts warm buff (17′d) instead of white as found in the nuptial plumage.

Adult winter plumage (*female*).—No females in the adult winter plumage were secured. Though all the males seen and collected had acquired the winter plumage by the time I left Illinois, which was August 15, the females were still in their nuptial plumage and only one of the specimens collected showed the beginnings of the post-nuptial moult. According to Dwight,[42] in the female in plumages following the first nuptial, "the throat remains pale brown with lateral chin streaks without the black patch of the male and the colors elsewhere are regularly duller."

A description of the natal, juvenal and first winter plumages will be found under the account of the life history.

The following tables contain the measurements of the specimens upon which the preceding descriptions were based. These skins are now in the collection of the Lee Museum of Biology at Bowdoin College:

TABLE V.

MEASUREMENT OF MALES (CENTIMETERS) NUPTIAL PLUMAGE.

Specimen number	35	39	40	72	85
Date, 1918	June 7	June 10	June 10	Aug. 2	Aug. 6
Bill	1.5	1.45	1.5	1.5	1.7
Wing	8.8	8.5	8.5	8.3	8.3
Length	18.1	16.8	17.9	17.8	18.0
Tail	6.7	6.4	6.2	6.3	6.1
Extent	....	....	....	27.0	27.1

[42] 1899, Ann. N. Y. Acad. Sci., 13, pp. 216–218.

Tarsus with middle toe..	4.7	4.3	4.6	4.8	4.9
Tip to tip of toes.....	3.8	3.7	3.6	3.9	4.0
3rd or front middle toe nail.....	.64	.65	.68	.6	.69
1st or hind toe nail.....	.86	.78	.80	.72	.85
6th primary.....	5.8	5.3	5.2	5.5	5.7
3rd secondary.....	5.2	4.9	4.8	5.0	5.1
Weight, grams.....	....	....	....	30.7	32.9

TABLE VI.

MEASUREMENTS OF FEMALES (CENTIMETERS) NUPTIAL PLUMAGE.

Specimen number.	51	65	66	69	70	83	84
Date, 1918.....	July 17	July 31	July 31	Aug. 1	Aug. 2	Aug. 6	Aug. 6
Bill.....	1.4	1.4	1.5	1.5	1.5	1.4	1.5
Wing.....	7.6	7.8	7.6	7.3	7.5	7.3	7.2
Length.....	15.9	16.0	15.1	15.7	15.6	16.4	16.5
Tail.....	5.3	5.2	5.3	5.3	5.3	5.5	5.0
Extent.....	24.3	25.2	23.5	24.1	24.5	24.1	23.8
Tarsus with middle toe.....	4.6	4.7	4.5	4.4	4.6	4.6	4.6
Tip to tip of toes..	3.8	3.9	3.6	3.9	3.8	3.5	3.8
3rd or front middle toe nail.....	.71	.70	.60	.68	.62	.70	.68
1st or hind toe nail	.81	.85	.80	.80	.78	.80	.81
6th primary.....	5.2	5.4	5.1	4.9	4.8	5.0	4.8
3rd secondary....	4.7	5.0	4.4	4.5	4.5	4.5	4.4
Weight, grams....	28.6	27.1	26.5	27.3	23.4	30.6	23.4

TABLE VII.

MEASUREMENTS OF MALES (CENTIMETERS).

79 and 105 adult winter plumage.

73 and 86 Intermediate between nuptial and adult winter plumages in post nuptial moult.

Specimen number.....	73	79	86	105
Date, 1918.....	Aug. 2	Aug. 6	Aug. 6	Aug. 9
Bill.....	1.6	1.5	1.6	1.5
Wing.....	8.2	8.0	8.0	8.1
Length.....	15.6	17.4	14.6	17.9
Tail.....	3.8	6.2	3.4	6.3
Extent.....	26.8	26.5	26.8	26.6
Tarsus.....	5.0	4.8	5.2	4.9
Tip to tip of toes.....	4.2	3.8	4.3	4.0

NESTS OF THE DICKCISSEL.

(a) Centralia, Marion Co., Illinois. July 15, 1909. Five Eggs.
(b) Atwood, Douglas Co., Illinois. July 2, 1918. Four Eggs.

3rd or front middle toe nail.....	.68	.65	.70	.64
1st or hind toe nail.....	.80	.82	.90	.85
6th primary.....	4.4	5.5	4.9	5.6
3rd secondary.....	5.1	4.5	4.8	5.0
Weight, grams.....	32.8	36.7	32.3	35.8

VI. GENERAL ACTIVITIES AND BEHAVIOR.

The following notes on the behavior of the Dickcissel were made during the nesting season, a time when there was an opportunity to study the birds from blinds at close range. Certain features of behavior which might properly belong here are discussed under other topics of this paper.

The study of the home life of a pair of birds that built their nest in the tall weeds and grass along a country roadside, supplied many interesting incidents which help in portraying the character and behavior of the Dickcissel. This nest (Plate V, fig. 9) built about ten inches above the ground, was composed of materials loosely interwoven among the stems of the tall weeds and grass. The tops of the grass and weeds which arched over this little home, protected the eggs and young from the direct rays of the sun and concealed them from the view of all who might pass. The wires of a barbed-wire fence which ran through the thicket of weeds also aided in protecting the nest from stray animals or even from people who might trample on the fragile structure. The fence, as well as the telephone poles and wires, provided excellent sentinel posts for the male and desirable perches for the cautious female when she went to and from her nest.

A blind from which observations of the birds could easily be made was constructed in the tall weeds along the fence about twelve feet from the nest. It was completely covered with cut grasses and weeds which gave to the surroundings nothing striking or unusual that might arouse the suspicions of the birds and thus cause them to leave. On the day after the blind was built the home life of the birds was being conducted in an apparently normal way and, so far as could be determined, not the least attention was paid by the birds to the miniature studio erected on their premises. The female flew from the nest when I entered the blind the first time, but after a few minutes she returned to

the telephone wires overhead to utter in unison with her mate the usual chirps of disapproval. The two birds continued chirping for about twenty-five minutes, when the female flew down to the fence wires at a place very near the nest. Something seemed to arouse her suspicions for she returned almost immediately to her mate. She now exhibited a state of uneasiness, for she repeatedly flew back and forth between the telephone wires and the fence. Suddenly, and for no apparent reason except for deception, she flew a long distance across the fields, as if abandoning all desire to return to the nest. The male now ceased chirping and tuned up to his full song. In ten minutes the sagacious female returned to the telephone wire and, without any hesitancy, flew to the fence post nearest her nest. From that point she carefully surveyed all of her surroundings and especially scrutinized the blind where the monster in the shape of a human being had so recently disappeared. Just at this moment the male was singing louder than ever, but his mate did not utter the faintest chirp. When conditions seemed favorable to the female she slipped into the weeds and noiselessly and cautiously made her way to her secret treasures. The birds played their parts well and without doubt their shrewdness misleads many enemies. The performance described above was repeated on following visits to the nest, but after a few days the birds paid little or no attention to my coming or going nor did they seem to be disturbed by the teams and automobiles which passed along the road. Even when the driver sounded his horn directly opposite the nest the birds made no visible response. However, when an automobile or team stopped in the road near the brooding female she invariably scooted off the nest into the grass. If the actions of the people were free from suspicion, she returned to the nest; otherwise, she flew to the telephone wires to chirp until all danger was gone. The female used her usual precaution in returning to her nest while the male seemed to sing with the evident purpose of attracting any attention which might otherwise be directed toward his mate.

At the time of the hatching of the young there is a noticeable change in the behavior of the female, though the male seems unchanged and unmoved by this important event in his household.

The female becomes extremely fidgety and excitable, yet very daring, at the time of these new responsibilities. She exhibits a readiness to hazard many dangers which she would not have faced before her parental instincts had been quickened by the appearance of her young. At this time she will, without the least hesitancy, return to her nestlings while an observer stands in full view only a few yards distant. When the mother bird returned for the first time after the hatching of the young she uttered a series of low subdued notes which seemed like tender greetings. She then carried the egg shells away and dropped them at a place quite remote from the nest. This habit, which is held in common with many other birds, is a part of the good housekeeping of the Dickcissel. All refuse and filth from the young birds is also immediately carried away so that the nest and its surroundings always present a neat and clean appearance. The first food, a larva, was delivered to the young about thirty minutes after the latter had emerged from the egg. The larva was crushed into small pieces which were thrust, at intervals of several seconds, into the gaping mouth of the little wobbly creature. While the little Dickcissel was receiving its first dinner the male bird sat on top of his favorite telephone pole pouring forth a volume of song and seemingly oblivious to what was happening in the weeds and grass below him.

On the following day two more eggs were hatched, but the fourth egg was sterile and remained in the nest unbroken until after the fledgelings left, nine days later.

During the first three days the mother brooded her young very closely and left the nest only when it was necessary to obtain food. Even during the heat of the day when the mercury rose above 90° she clung closely to her nest. When the heat became excessive she panted incessantly and her partially spread wings protruded over the edge of the nest. Though she often presented an appearance of dire desperation, she always remained faithful to her family while the male did nothing but encourage her with his song. On the fourth and fifth days, the mother bird spent less time on the nest and from the sixth to the ninth days, when her ability became sorely taxed to satisfy the ever-increasing appetites of her young, she seldom lingered at the nest for any

length of time. Evidently it was unnecessary for the female to brood the young after the sixth and seventh days because the feathers and the contact of the young birds' bodies with one another easily retained the high body temperature without the aid of the parent. The temperature of nestlings six days old which had been left alone in the nest for an hour was 106° F. (normal for birds), while the surrounding temperature was only 80° F.

The Dickcissel attends strictly to his own affairs, seldom if ever meddling with the life of other birds. When strangers intrude on his premises he not only leaves them alone but often exhibits a marked timidity or cowardice. One day a young Kingbird alighted on the fence wire just above the Dickcissel's nest. It was followed by the parent Kingbird which continued to feed the fledgeling in that place for more than twenty minutes. During this time both of the Dickcissels were exceedingly disturbed but neither dared to offer any objection to the unbidden tyrant.

Many birds, such as Mourning Doves, Bobwhites, Vesper Sparrows, Migrant Shrikes and others, made their appearance about the nest, but at only one time did I see the Dickcissel muster enough courage to assert his feelings about the intrusion. One afternoon a young Dickcissel about three or four weeks old perched on the fence near the nest. As soon as the male saw the strange young bird he stopped his singing abruptly, ruffled his feathers and dashed at the innocent intruder with the ferociousness of a tiger. The scared stranger flew for his life and escaped in the tall weeds and grass. This incident seems to signify that the Dickcissel is ready to assert his authority over the younger of his own kind but is too much of a coward to tackle a bird as large or larger than himself.

When one thinks of the Dickcissel it is usually of a finely colored male perched on a high post or weed stalk pouring forth a volume of earnest and cheerful song. Because of these superficial qualities the male Dickcissel has become a favorite of many bird lovers, but as one becomes more intimately acquainted with the domestic life of the species the less one is apt to admire the male. He takes no part in nest building nor incubation; neither does he

help his mate during the busy time of feeding and caring for the young. The following narrative further justifies us in condemning him as a lazy husband and as a father utterly lacking resourcefulness when responsibilities are thrust upon him. The home where this tragedy was enacted was nestled among the fragrant clover blossoms where, throughout the sunny hours of the day, myriads of beautiful butterflies flitted about from flower to flower sipping the nectar from the clover cups. Loudly above the buzzing of the bumble bees one could hear at regular intervals the notes of the Dickcissel announcing, as well as words could tell, that his family was at home in the clover field. As I watched the male bird the female appeared beside him with a grasshopper nymph for her little ones. The male kept up his singing while his mate flitted nervously from place to place uttering a number of inquiring chirps. After deciding all was well she became quiet and then flew directly to her treasures which were hidden by a beautiful canopy of clover blossoms. A hurried visit to the spot revealed a nest and three birds about four days old, all in excellent condition (plate IV, fig. 7). I again visited this field of clover on the following morning to watch and enjoy the home life of this pair of birds. Their general activities were very much as they were on the preceding day; the female busily plied to and from the nest in a strenuous effort to satisfy three hungry mouths, while the male offered her no help and seemed to think he was "doing his bit" by singing for his family. All was going well in the life of this Dickcissel home when a calamity brought it to a sudden and disastrous ending. The faithful mother was in the act of carrying another tempting morsel to her young when she was taken unawares and carried away in the talons of a Sharp-shinned Hawk. Not more than a minute after this catastrophe, almost before one could come to the realization of what had happened, there came the familiar notes of the male from a post nearby. As I listened to him the thought came to me that he was now confronted by circumstances in which his part must necessarily be more than singing. It seemed to me fortunate for the three young that at least the male had been spared to continue the work so well begun. Throughout the morning the male kept up his singing and he was still at his post in the after-

noon. Early the next morning he was singing as loudly as ever but he made no effort to feed the now starving young. At noon I fed the pitiful creatures some grasshopper nymphs with the hope that the male bird would finally care for them, but on the following day, though the male was still singing, he was singing to ears that could no longer hear the notes that were meant for them.

VII. SONG.

The song of the Dickcissel is simple yet, like many bird notes, it is difficult to put it into words that will convey to the reader the author's interpretation. The song has been written in as many ways as there have been writers to attempt the description, so it seems needless to contribute another to the already long list of versions.

Wilson describes the song as consisting "only of five notes, or rather two: the first being repeated twice and slowly, the second thrice and rapidly, resembling 'tship tship tshe tshe tshe.'' Nuttall states: "With us the call is 'tie tie—tshe tshe tshe tship" and 'tship tship, tshe tshe tshe tshe tship.'" Dr. Elliott Coues interprets it as "Look! Look! see me here! see!" and again he writes, "the simple ditty sounds like chip-chip-chee, chee, chee." To the Rev. J. Hibbert Langville it sounds like "chic-chic-chèlac-chick-chick-chick" or "chick-ticktshe-chick-chick-chick." Amos W. Butler writes: "It comes to me characteristically as fine metallic sounds something like the noise made by dropping six silver dollars one upon the other into one's hand: clenk, clenk, clenk-clenk-clenk." Mr. Robert Ridgway writes: "They perch upon the summits of tall weed-stalks or fence stakes, at short intervals crying out: See, see, -Dick, Dick-cissel, cissel." This latter is a much quoted interpretation of the song and one which has given popularity to the common name, Dickcissel.

It is possible to imagine the Dickcissel singing almost any of the varied sets of words given above, yet to the reader who has never heard the song, some of these interpretations might be very misleading. If a person unfamiliar with the Dickcissel attempts to imitate some of them, they become ludicrous. If I were to select from the above list of descriptions the ones which

seem to best depict the character of the Dickcissel's song it would be a combination of the ones written by Nuttall and Ridgway, "See See,—Dick!, Dick!, tshe tshe tshe tship (or chisl)." A "tship!, tship!" can be substituted for "Dick!, Dick!," but the latter seems more appropriate when we consider its name. The "see see," which serves as a prelude, is very faint and not heard unless one is near the singer. These preliminary notes are often omitted and I have failed to hear some males utter them at all. The "Dick! Dick!" or "tship! tship!" is loud, strongly accented and repeated slowly. This note is usually uttered twice, but sometimes it may be sounded a third time. It is followed by a rapid succession of three or four notes which sound like "tshe" or "chee." The last note ends abruptly and is slightly different from the others, being more like "tship," and sometimes it resembles "chisl" or merely "isl." When the bird is weary, and often when the weather is excessively hot, the song is simplified to "Dick! Dick!-isl" and sometimes at irregular intervals it is merely "Dick! Dick!"

The Dickcissel begins singing as soon as it arrives in the spring, indeed, the presence of the male newcomer is usually made known by his loud characteristic call. During the nesting season the song can be heard at nearly all times of the day, but it is by no means the first of the bird voices to be heard in the morning. During the early morning hours, while waiting in my blind for the coming of dawn, the weird call of the Pheasants, the booming of the Prairie Hens, the cooing of the Mourning Doves, the whistled Bob-white calls and even the sweet notes of the Song and Vesper Sparrows were heard long before the Dickcissel added his voice to the chorus. As the day wore on and the heat increased the first voices were silenced one by one, but the Dickcissel kept up his singing with an undiminished earnestness. Even in the middle of the day, when the waves of heat that rose from the fields to an almost unbearable intensity drove most birds to cover, the song of the Dickcissel was still in evidence. The earnestness and persistence of the Dickcissel is a trait we are compelled to admire.

The songs of the Dickcissel follow in such rapid succession and in such regularity that a record of the number of calls per

minute during different times of the day are interesting. For this purpose a male was selected whose mate was brooding a nest of young a few yards from one of my blinds. The favorite perch of this bird was the top of a gnarled stump, the highest point in the neighborhood of the nest. The times of the day selected for the count were five o'clock and ten o'clock in the morning and a third count at noon. Counts of the number of songs per minute of other males made at various times on other days were similar so that the records presented represent a fair average condition.

TABLE VIII.

COUNTS OF THE NUMBER OF DICKCISSEL SONGS PER MINUTE.

(Time—5:05–5:21 A. M.)

1st	minute,	12	calls	7th	minute,	0	calls	12th	minute,	10	calls
2nd	"	5	"	8th	"	0	"	13th	"	13	"
3rd	"	3	"	9th	"	6	"	14th	"	9	"
4th	"	10	"	10th	"	7	"	15th	"	6	"
5th	"	10	"	11th	"	9	"	16th	"	7	"
6th	"	7	"								

In the above counts there are a total of 114 calls for the 16 minutes or an average of 7.1 calls per minute. Before the end of the 6th minute the bird left his perch, captured and ate a grasshopper and resumed his singing during the 9th minute.

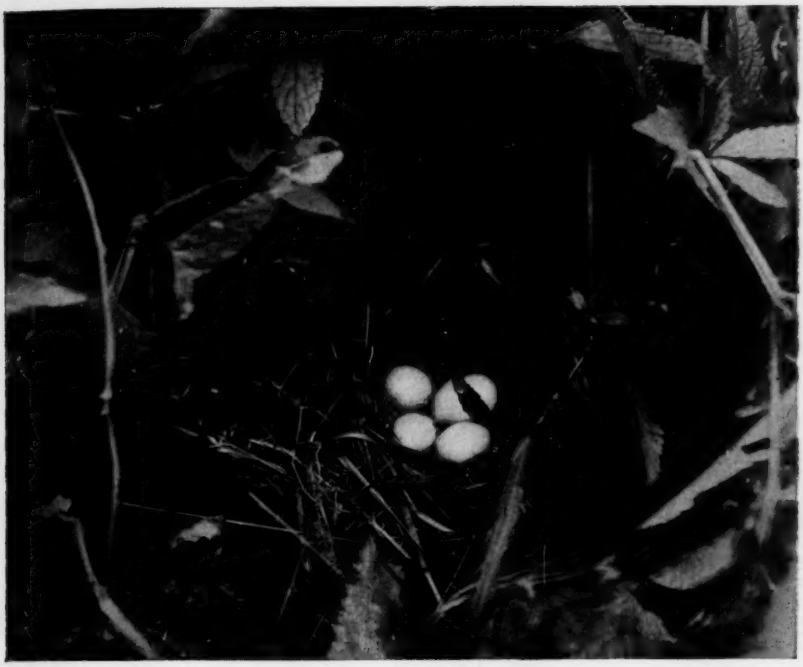
TABLE IX.

COUNTS OF THE NUMBER OF DICKCISSEL SONGS PER MINUTE.

(Time—9:55–10:11 A. M.)

1st	minute,	10	calls	7th	minute,	8	calls	12th	minute,	12	calls
2nd	"	12	"	8th	"	0	"	13th	"	12	"
3rd	"	9	"	9th	"	0	"	14th	"	8	"
4th	"	9	"	10th	"	0	"	15th	"	2	"
5th	"	9	"	11th	"	12	"	16th	"	10	"
6th	"	10	"								

In the above counts there are a total of 122 calls for the 16 minutes and an average of 7.6 calls per minute.



NESTS OF THE DICKCISSEL.

(a) Atwood, Douglas Co., Illinois. July 17, 1918. One Egg Hatching.
(b) Atwood, Douglas Co., Illinois. July 25, 1918. Three Young, Two Four Days Old and One Three Days Old.

TABLE X.

COUNTS OF THE NUMBER OF DICKCISSEL SONGS PER MINUTE.

(Time—12:00–12:16.)

1st	minute,	10	calls	7th	minute,	0	calls	12th	minute,	5	calls
2nd	"	13	"	8th	"	13	"	13th	"	7	"
3rd	"	14	"	9th	"	11	"	14th	"	8	"
4th	"	7	"	10th	"	13	"	15th	"	10	"
5th	"	4	"	11th	"	2	"	16th	"	15	"
6th	"	0	"								

In the last series of counts there is a total of 132 calls for the 16 minutes and an average of 8.2 calls per minute. It is in the last minute of the last trial that the Dickcissel reached the maximum number of 15 calls per minute, the highest count made during the summer. During that minute the song was uttered on an average of once every four seconds.

From a comparison of these counts, which are typical among many others, it is seen that the rate of the repetition does not diminish but actually increases in this case from 7.1, at five o'clock to more than eight calls per minute, during the intense heat of the midday sun. When the heat was excessive (above 100° F.) the quality of the song was greatly interfered with by the rapid respiration or panting of the bird; at such times the song was often a repetition of "tship, tship" without the prelude or the usual ending.

The Dickcissel is active for twelve to fourteen hours during the day, hence it will be seen that if the male maintains an average of seven repetitions per minute he will repeat his song about 400 times an hour or more than 5000 times during the day. Is it any great wonder that the song of the Dickcissel is described as monotonous and wearisome? I know of no bird which sings more frequently and continuously, neither the Red-eyed Vireo nor the Ovenbird is a match for him.

The average number of chirps, uttered by the female when disturbed, taken over similar periods of time as those shown above for the male, varied from ten to fifty per minute depending on the state of her excitement.

Though the Dickcissel is not the first to begin the morning bird song he is one of the latest singers at night. Even after

the glow of sunset is gone I have heard the voice of the Dickcissel sound above the hoarse calls of the toads and the varied tones of the myriads of singing insects. The only other bird note I heard on those prairie fields after the last Dickcissels had settled for the night was the shriek of a Screech Owl awakening from his day nap in the tall hedge across the field.

During the first or second week of August the clover fields and meadows, which during June and July resounded with the calls of the Dickcissel, became quiet. By the middle of August you may find a number of females still busy feeding and caring for their young, but the males have deserted their haunts to join others now at the secluded roosts. Here they change their nuptial suit for a new and brighter plumage before beginning their annual fall migration. Though these birds remain in the north several weeks longer, the male song is now silenced for another year, and to the casual observer the Dickcissels seem to have left their prairie homes for the southland.

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(*To be continued.*)

A NESTING OF THE PHILADELPHIA VIREO.

BY HARRISON F. LEWIS.

INTRODUCTION.

IN June and July, 1919, a nesting of the Philadelphia Vireo (*Vireosylva philadelphica* Cass.) took place on the grounds of my residence at a distance of about thirty feet from my front door. By reason of this fortunate proximity I was able to make daily observations of the home life of this species, the results of which are here presented.

It should be stated that, prior to the occurrence of this nesting, I had not, to my knowledge, observed a Philadelphia Vireo in life, and that I possess no distinct recollection of mounted specimens which I may have seen. Nevertheless, as these adult nesting birds were repeatedly observed by me, with the aid of opera-

glasses, at distances of three to six feet, under a great variety of conditions with regard to position and light, I am positive of the identification in their case, and have no hesitation whatever in submitting it to the judgment of others. The living birds were compared in detail with descriptions of the species as given by Coues[1] and Chapman,[2] and the various characteristic particulars of coloration and of comparative size were noted. Comparison was also made with the colored plate of an individual which appears with a paper by Dwight,[3] which demonstrated a general agreement, although the yellow of the underparts was not as rich in the birds seen by me as in the plate. However, not only does the strength of this yellow wash appear very different in different lights, but, as will be shown later, there seems to be considerable individual variation in the richness of it, even in birds of the same brood.

To Mr. C. E. Dionne, of Laval University, Quebec, I am much indebted for his kindness in lending me literature concerning the Philadelphia Vireo and for his aid in the identification of some of the insect food of the birds.

As both sexes are colored alike in this species, and as the female sings to some extent, and as the male aids in incubation and in feeding the young, I was often unable to distinguish between the two birds. In this paper I have not recorded them as male and female unless I was practically certain of the sex at the time.

The time used throughout this paper is Eastern Standard Time, not "summer" or "daylight-saving" time.

LOCALITY.

My present residence, where this nesting occurred, is in the little village of Bergerville, in the Parish of St. Colomb de Sillery, in the immediate suburbs of the city of Quebec. Its elevation above sea-level is about three hundred feet. Southeast of it, at a distance of about half a mile, is the St. Lawrence River, which is here a tidal stream. No other stream or body of water of

[1] Key to North American Birds, 5th ed., 1903.
[2] Handbook of Birds of Eastern N. A., Rev. ed., 1912.
[3] The Auk, XIV, 1897, pp. 259–272.

appreciable size exists within a radius of half a mile of the nesting-place.

The underlying rocks at this point belong to the Sillery formation of the Cambrian system.

The country immediately about the nesting-site is the gently undulating surface of the ridge at the end of which Quebec is built. My residence and the nesting-tree are on an elevation rising slightly and gradually above the general level of the vicinity. The quadrant lying west of the nesting-site, between southwest and northwest, is mainly occupied by rather open woods of Red Oak (*Quercus rubra* L.), and White Birches (*Betula pendula* Roth. and *B. alba* L.), mixed with a few trees of White Pine (*Pinus Strobus* L.), Balsam Fir (*Abies balsamea* (L.) Mill.), and Red Maple (*Acer rubrum* L.). This woodland area, which is two or three square miles in extent, approaches to within about thirty feet of the nesting-tree. The three other quadrants about the nesting-site contain fields and scattered dwellings, the latter surrounded by numerous shade trees, mostly Red Oak, White Pine, and Rock Maple (*Acer saccharum* Marsh.). No public highway passes very near to the nesting-place.

NESTING.

June 11. While walking to my garden in the afternoon I saw for a moment on the black roof of a shed a Vireo which seemed to be smaller and grayer than a Red-eyed Vireo. It flew away quickly and I was too busy at the time to follow it.

June 12. About 7:00 a. m. I saw a small, grayish Vireo on the roof of the porch of my house. It flew up under the eaves of the main roof, tore away with its bill a spider's white "cocoon" which was placed there, and alighted on the roof of the house with the "cocoon" streaming from its mouth. It then flew away with it to some Rock Maples nearby. Again I was too busy to follow it.

In the early evening, on the grounds of my residence, I saw one Vireo chasing another, and, by "squeaking," succeeded in attracting the attention of the pursuer, which alighted in a Rock Maple about six or seven feet from me. For three or four minutes I studied it through opera-glasses as it moved nervously about.

I was able to observe at this time that it was smaller than a Red-eyed Vireo, that its crown was grayish, without a black border, that there was a pronounced whitish line over the eye, that the wings appeared grayish, with some traces of olive-green, but without wing-bars, and that the throat, breast, and under tail-coverts showed distinctly yellowish, especially the throat and breast. The yellow appeared as a strong "wash," but not as the ground-color, which was white or nearly white. One or two separate notes only were heard. I became convinced that the bird was a Philadelphia Vireo.

June 13. About 6:00 a. m. one Philadelphia Vireo, presumably the female, was seen carrying nesting material repeatedly to a young Rock Maple about thirty feet from my front door. The material, which appeared to be dead grass, was gathered from the ground at a point about eighty feet from the nesting-tree. The other Philadelphia Vireo, supposed to be the male, accompanied his mate back and forth as she brought material to the nest, and, while perched, sang a good deal, rather slowly, in a low, sweet voice. When the pair were together, they uttered low conversational notes, and the male at one time scolded me a little. I observed that the yellow wash was present on his belly, and that his back was grayish.

After failing to discover the nest from the ground by looking into the nesting-tree from every side, I climbed the tree at 5:00 p. m. and found the nest quite high up and well hidden by the foliage. It was placed in the fork of a slender twig which sprang from the main bole of the tree. The top of the tree was so slender that, at the highest point which I could reach, my head was about a foot below the nest, so that I could not look into it. When I had descended I found that from one particular point it could be seen quite clearly from the ground. One of the Vireos was working at it almost as soon as I was away from the tree. At 6:00 p. m. I climbed the tree again and, by feeling in the nest, discovered that there were no eggs in it, and that it seemed to be unlined.

June 14. Beginning at 5:45 a. m., I watched the Philadelphia Vireos for about forty-five minutes. One bird, probably the female, was proceeding with the nest-building. She gathered

dead grass from the ground at a point about ten feet from the nesting-tree and also from other places out of my sight. At one time she went on the nest and remained quiet for several minutes. She seldom flew directly to the nest, preferring to alight once or twice on branches nearby and to reach the nest by a final short flight. The other bird, which was not heard to sing during the morning, stayed much in the lower part of the nesting-tree or in the maples near it. Sometimes he would accompany his mate on her trips for nesting-material, returning just behind her to the vicinity of their home. At other times he would remain not far from the nest, and, when he saw her coming, would fly out to meet her and escort her back to it. I did not see the male take any part in gathering material or in working on the nest, but I would point out again that I was not able to distinguish the sexes with absolute certainty, and that my only reasons for assuming that it was the female which did the work are that this seems the probability, since the females of most species of birds take the lead in such work, and that the bird which was not working sometimes sang. Various call notes were frequently heard during the morning, especially when the birds were together near the nest.

At 4.40 p. m. I climbed to the nest and observed that there were no eggs in it. Examination of its interior was commonly made, on this and subsequent occasions, by looking at the surface of a mirror held above it. No Vireos were seen while I was in the tree at this time. When I reached the ground again, I heard the song of the Philadelphia Vireo nearby. I fixed my gaze steadfastly on the willow from which the song seemed to come, and started to walk slowly toward it, but, when I had covered about half the distance, the song, which had not ceased, seemed suddenly to come from behind me. I turned sharply about and saw the singer, about three feet from my head, on a level with my eyes, perched on the bare branch of a small dead apple tree. It had continued to sing in that exposed position while I walked past, unseeing, within three feet of it. It sang again once or twice, then flew away.

June 15. Cloudy. Before I left the house in the morning, I heard the song of the Philadelphia Vireo between 5.50 and 6.00

o'clock. At 6.30 a. m. I sat down out-of-doors in sight of the nest. One bird was on the nest at the time, but it left silently after a minute or two. At 7.13 one bird went on the nest and sat there quietly until it flew off at 7.18 and met the other bird two or three feet away among dense foliage where I could not see them. The other bird had entered the tree unobserved by me, which it could do easily if it entered on the far side of the tree, as the foliage was very thick. One bird soon flew back to the nest and worked at it, now from this side, now from that, until 7.35, when it flew away quietly. At 7.50 one bird went on the nest. At 8.03 the other bird flew into the tree just below the nest and the bird on the nest left its position and went down two or three feet to meet its mate out of my sight among the leaves. Almost immediately one bird returned to the nest, while the other went to the lower part of the tree and then flew away. The bird at the nest worked at it almost continuously until 8.25, then departed. A slight sprinkle of rain began at 8.34. At 8.36 I observed a bird on the nest, though I did not actually see it go on. Soon afterward I heard the usual singing, which seemed to come from the sitting bird, although I was not sure that it might not be from another bird, concealed in the thick foliage nearby. This song which seemed to come from the sitting bird was heard at intervals during the morning. The bird was still on the nest when the shower ceased at 9.00 a. m. I then went indoors, noting that the temperature was 72° F.

At 11.40 a. m. I resumed my observations and found one bird on the nest. It again seemed that this bird was singing. After a few moments the other bird flew from behind me and entered the nesting-tree below the nest, thus proving that the song had been uttered by the sitting bird. The bird on the nest flew down to meet its mate in the thick foliage, then a moment later one bird went back to the nest, while the other flew away. On this and similar subsequent occasions I was unable to determine if one bird fed the other, or if they merely caressed and resumed their former occupations, or if they exchanged duties.

At 12.20 p. m. and at 12.50 p. m. a singing bird was observed on the nest, but at 1.25 p. m. no bird could be seen near it.

At 5.15 p. m. I climbed to the nest, saw that it contained one egg, and descended at once. One bird watched me anxiously from the next tree, but uttered no notes.

The song which I heard during this day from the bird on the nest was the same, almost throughout, as that heard on June 13 from one bird while the other was nest-building. It appears, therefore, that one or more of the following hypotheses is true: (a) the male and female of this species both sing this same song, or (b) the female sings this song on the nest and also sings it while the male builds the nest, or (c) the male sits on the nest and there sings a good deal on the day on which the first egg is laid (as well as on subsequent days). In the absence of definite proof I can say only that I feel very doubtful about (b), but cannot choose between (a) and (c).

June 16. Cloudy, temperature 56° F. at 6.30 a. m. The nest was observed from 6.00 a. m. to 6.30 a. m., during all of which time one bird remained quietly on it. Two or three phrases of its song were heard. When sitting, the bird frequently lifted its head to gaze about. The nest was also observed at 7.05 a. m., 7.25 a. m., 12.15 p. m., 12.40 p. m., 5.25 p. m., and 5.55 p. m., at each of which times a silent bird was seen on it. At 5.55 p. m. I climbed to the nest. After I began to climb I did not see or hear anything of either Vireo. The nest contained two eggs, which were seen to be white, with a few small, scattered dark brown spots about their larger ends only.

It seems that there is a good deal of incubation from the day on which the first egg is laid.

June 17. A Philadelphia Vireo was seen incubating at 6.00 a. m., at which hour I climbed to its nest. When my hand was about two feet below the sitting bird, it slipped away quietly. The nest was then seen to contain three eggs. On the third egg was one spot which was nearer the small end than the large end; all the other spots seen on it were nearer the large end. I descended, and at 6.12 a. m. a Vireo returned to the nest by short flights. On arriving at the nest it gave one glance therein, then settled down on it. It remained there quietly until 6.30 a. m., when I left the vicinity. Evidently the third egg was deposited between 5.55 p. m., June 16, and 6.00 a. m., June 17, probably in the early morning hours of June 17.

A bird, which was not heard to sing, was observed on the nest at 4.25 p. m., 5.30 p. m., 6.00 p. m., and 6.50 p. m. At 6.50 p. m. I again climbed to the nest, which then contained three eggs only. The sitting bird departed quietly when my head was about a foot below it, and perched, facing me, on a limb some six feet away, in full view, showing its yellow underparts very plainly.

June 18. When I climbed to the nest at 5.00 a. m., one Vireo was on the eggs. When I was about a foot away the bird quietly left the nest, which still contained three eggs only. I reached the ground again at 5.03. The Vireo returned to the nest at 5.14, and, after a characteristic momentary inspection of its contents, settled on it. It sat there quietly until 5.45 a. m., then suddenly began to sing a slow, sweet song. The tone and quality of this song were similar to those of the singing previously heard, but the notes were for the most part quite different from any notes which I heard from any bird of this species at any other time. The song ceased at 5.53, after a duration of eight minutes. At 5.56 the bird shifted about a good deal.

At 6.00 a. m. I climbed to the nest again. When I was about three feet below it I stopped and looked at the sitting bird, which leaned far over the edge of its home and opened its mouth wide at me. It continued to hold its mouth open, without a sound, during most of the minute or two of this mutual inspection, although it closed it for a moment once or twice. This was the only occasion on which I observed any action of this kind. When I climbed further, so that my face was but a foot below the bird, it flew away silently. The nest now contained a complete set of four eggs, the fourth egg resembling the first two in having the scattered dots on the observable surface near the large end only. As I did not touch the eggs, I could not tell how they were marked on their lower surfaces.

It is evident that the fourth egg was laid between 5.14 a. m. and 6.00 a. m. It is also certain that the female can sing, and that her song is sometimes, at least, made up of notes differing from any heard from the male. The song heard on this occasion seems to have been in the nature of a little hymn of gladness and thanksgiving on the part of the female after the laying of her egg. Whether or not it follows the deposition of the last egg only I do not know.

For comparison it may be stated that a full set of eggs was found by Brewster[1] at Lake Umbagog, on the border of Maine and New Hampshire, on June 14, 1903, one was found by Seton, as mentioned by Brewster,[1] at Duck Mt., Manitoba, June 9, 1884, and full sets were observed by Philipp and Bowdish[2] in Northumberland County, New Brunswick, on June 17, 1916, and June 27, 1918.

The nest was observed at 7.25 a. m., 12.00 m., 5.00 p. m., 6.30 p. m., and 7.12 p. m., and a bird was seen on it each time except at 6.30 p. m., although no song was heard.

June 19. A Vireo was sitting at 6.00 a. m., when I began observation. It turned about frequently on the nest. At 6.20 a. m. I climbed the nesting-tree. The bird left as usual when I reached a point about a foot below it. I found four eggs only in the nest.

The nest was observed at 12.00 m., 12.25 p. m., 4.45 p. m., 5.40 p. m., and 6.45 p. m., and each time a bird was seen incubating, but no song was heard. At 6.45 p. m., I climbed to the nest again and observed that the eggs in it did not appear to have any regular plan of arrangement. They lay indifferently on chords or radii of the nest-circle, those lying on radii having either end outward.

June 20. The nest, with sitting bird, was observed from 6.00 a. m. to 6.30 a. m. The bird sang its low, sweet song several times, and paid not the slightest heed to repeated "squeaking" on my part. A bird was also observed on the nest at 7.25 a. m., 12.05 p. m., 12.40 p. m., 5.45 p. m., and 6.15 p. m., but no song was heard at those hours.

June 21. One of the Vireos was observed on the nest at 6.40 a. m. I did not see it leave its position there, but at 6.45 I heard one of the call notes of the species, which drew my attention to the fact that the nest was unoccupied and that the bird uttering the note was in the top of a Rock Maple next to the nesting-tree. This bird uttered one or two notes of song, then went to the nest and settled on it, continuing to sing there at irregular

[1] The Auk, XX, 1903, pp. 369–376.
[2] The Auk, XXXIV, 1917, pp. 265–275; and XXXVI, 1919, pp. 36–45.

intervals until I departed at 7.10 a. m. I am not sure whether or not this was a case of one bird relieving the other at incubation.

At 7.25 a. m., 12.45 p. m., 3.50 p. m., 5.50 p. m., and 7.15 p. m. a bird was seen on the nest, but no song was heard from it.

June 22. Cloudy, wind north, temperature 53° F. at 7.30 a. m. One Philadelphia Vireo was on the nest at 7.30 a. m., when I commenced observation. At 7.47 it quietly arose, stepped to a nearby twig, then flew away. I watched carefully for its return, but did not actually see it go on the nest, although it was there at 7.59 a. m., and I am sure that it was not there only a few seconds before. At 8.29 the bird quickly left the nest, seeming to fly directly from it to a nearby oak, where it fed. It returned at 8.34, and was still sitting at 8.55 a. m., when I left. It appears that at this stage of incubation, one week after the laying of the first egg, the nest is left uncovered while the incubating bird feeds. No song was heard during the morning.

At 3.45 p. m. a Philadelphia Vireo was heard singing in the oak woods, at a distance of four or five rods from the nesting-tree. At 4.03 p. m. the same song was being sung by a bird on the nest, which was probably the same bird. The song continued until 4.14 p. m., and when I observed the nest at 4.15 p. m. no bird was on it.

June 23. Cloudy, temperature 52° F. at 6.00 a. m. The nest was unoccupied at 6.00 a. m., when I began observation. I kept a careful watch for the Vireo, but failed to see it actually go on the nest, so inconspicuously did it return. It was on the nest at 6.13, but was not there a few seconds earlier. It remained there quietly until 6.30 a. m., when I left.

A bird was observed on the nest at 12.45 p. m., 5.20 p. m., and 6.00 p. m., but no song was heard from it.

June 24. A glance at the nest at 6.00 a. m. showed that a bird was on it. At 6.25 a. m. I resumed observation and found the nest uncovered. A bird returned to it at about 6.28 and remained there until 6.55 a. m. As its mate, during this time, was singing loudly and continually from the oak woods, it seems probable that the bird on the nest was the female. At 6.55 a. m. I climbed the nesting-tree. When my head was about five feet below the nest, I saw that the bird was no longer sitting, but

that it was perched on a small twig which sprang from the trunk about six inches below the nest. In these positions we looked at one another for some seconds, then I raised myself so that my head was about eighteen inches below the bird, which did not move except to turn its head slightly. The yellow of its underparts, though not at all pronounced, could then be seen plainly, and the lack of a black border to the crown was also noted again. After about twenty seconds of this close inspection, the bird flew silently away. On going to the nest I found that the four eggs appeared unchanged. At 6.59 I reached the ground again, and the bird went back to the nest at 7.06. It remained there until 7.45, when I ceased observing it for a time.

At 8.35 a. m. I returned to my observation-post. One Vireo (probably the female) was on the nest, while the other was singing loudly among the nearby oaks. At 9.02 no bird was on the nest, though I did not see the sitting bird leave. At 9.08 the female returned swiftly to the nest, while the song of the male, which had been sounding uninterruptedly from the oaks, was heard suddenly from the maple next to the nesting-tree. After a few seconds singing from the oaks was resumed. It is not clear whether the male had chased his mate back to her duties, or had simply escorted her back. The female was still incubating when I left at 9.35 a. m.

A bird was noted on the eggs at 11.45 a. m. At 7.10 p. m. one bird was on the nest, while its mate moved slowly through the branches from three to six feet away and sang sweetly for several minutes in an undertone.

June 25. At 5.58 a. m., when observation began, no bird was on the nest. I soon found the pair of Philadelphia Vireos feeding together in the woods, the male singing and following the female at a little distance as she flew from tree to tree. She seemed to lead him where she pleased, keeping to the lower branches of the trees. At 6.06 she returned to the nest, the male accompanying her to within a few feet of it, singing the while. He soon moved away again, still singing. I followed him to watch his feeding habits, and at 6.25 a. m. saw him suddenly fly to a point several rods away. As I pursued him I heard a scolding note once, followed by singing. I found that once more the female was feed-

ing, and that again he was following her through the branches. He did not seem to think of relieving her on the nest. It will be noted that in this part of the incubation period he did not appear to pay any attention to the absences of the female from the nest, except to follow her closely and sing while she fed. The female had not resumed incubation at 6.30 a. m., when I left. At 6.44 a. m. I happened to be near the nest again and saw the female return to it, escorted by the male in song.

A bird was seen on the nest at 12.00 m., at which time the male was heard singing nearby. He was still singing at 12.30 p. m., but no bird was then on the eggs. At 4.45 p. m., one bird was on the nest, and no song of this species could be heard.

At 6.41 p. m., when I climbed to the nest, the female was on it, while the male was in song about two rods away. The female continued to sit until some seconds after my head was a foot below her; then she peered over at me and flew off quietly. This was the first occasion on which she sat so closely. Before the eggs hatched the old birds never uttered a sound near the nest while I was examining it, nor did they usually appear at all after the one on the nest had left it. On this occasion the male, without approaching me, lowered his song to an undertone while I was examining the four eggs, which appeared unchanged.

June 26. A Vireo was observed on the nest from 6.10 a. m. to 6.25 a. m. and also at 12.00 m., 12.25 p. m., and 3.45 p. m. A light rain began about 12.15 p. m., and continued for the remainder of the day.

June 27. After a night of heavy rain, the day was cloudy and windy, without rain. The temperature at 6.00 a. m. was 67° F., but by 6.35 p. m. it had fallen to 56° F.

One bird, presumed to be the female, was observed on the nest at 6.00 a. m. At the same hour the male, whose song I had not heard earlier in the morning, began to sing in a loud voice from the top of a nearby oak. In less than a minute, still singing, he approached the nest rapidly by short flights from branch to branch. When he was about a foot below the brooding female she slipped quietly off the nest and flew directly away. The male then went to the nest and, after some turning and twisting about, settled himself upon the eggs, where he continued to sing at intervals in

an undertone. It will be observed that this first certain evidence of the male's participation in incubation was obtained twelve days after the laying of the first egg, which appears to have been coincident with the beginning of the incubation period.

At 6.16 the male began to sing more loudly, perhaps as a signal that he was ready to be relieved. At 6.17 he suddenly interrupted his song by a series of mouse-like squeakings and flew off the nest. His mate, who had approached the nest from the far side unobserved by me, then went on it immediately to brood. The birds did not actually meet one another during either of these exchanges of duties. The male procedeed to the oak woods, where he continued to sing loudly. The female remained on the nest until 6.30 a. m., when I left.

A bird was seen to be incubating at 12.00 m., 12.25 p. m., 3.30 p. m., 5.35 p. m., 6.35 p. m., and 7.10 p. m. The bird which was on the nest at 7.10 p. m. was heard to sing two or three times, and may have been the male. I climbed to the nest at 7.10 p. m., and found no visible change in the eggs.

June 28. One bird was observed on the nest at 5.57 a. m. A few seconds later the other bird, probably the male, approached the nest, uttering subdued musical notes. The sitting bird flew off and he took her place on the nest, where he sang at irregular intervals, now loudly, now softly.

At 6.04 I began to climb the tree, desiring to see if the male would sit as closely as did the female. He did so, remaining on the nest until after my head was but a foot below him, when he flew off in silence. The eggs showed no change. I descended at once, reaching the ground at 6.07. As I was climbing down the tree, I heard a few notes of song from the male in a nearby oak, and after I reached the ground these became louder and more frequent. At 6.09 a. m. the female went on the nest, while the male continued to sing loudly from his perch, making no move to escort her on.

At 6.29 a. m. I was watching the male singing in a small birch when his mate flew past me into the lower part of the tree. He immediately chased her into an oak and sang there for a minute or two, but at 6.31 he went on the nest himself and continued his singing there.

A bird was observed on the nest at 7.25 a. m., 12.45 p. m., 1.50 p. m., and 5.00 p. m., but no singing was heard after early morning.

June 29. The morning was fine and cool and the song of the Philadelphia Vireo was heard through the open window from 4.45 a. m. to about 6.30 a. m. At 7.34 a. m. I climbed to the nest and found in it four eggs, apparently unchanged.

A bird was seen on the nest at 11.46 a. m. At 11.50 I took my place to watch it. As it was singing slowly, I considered it to be the male. At 12.04 p. m. its mate approached with a mass of something, apparently food, in its bill. It perched within two or three inches of the nest, then flitted away a short distance, then went back to a perch beside the nest, then flew away again. The bird on the nest seemed to be undisturbed, and I could not see that the other bird fed it, or that it disposed in any way of the mass in its bill, or that the two birds touched one another at all. I have since wondered if this was the first noticeable result of an instinctive desire to feed the young, a desire which at this time could not be put into effective action. At 12.06 p. m. I was obliged to depart.

At 12.40 p. m., when I resumed observation of the nest, one bird was on it, and no song of this species was to be heard. At 12.52 the male began to sing in a low voice from the oaks, and at 1.05 he quietly replaced the female on the nest, where he continued to sing. At 1.11 the female relieved him and he resumed his singing in the oaks. At 1.14 I ceased observation for a moment, and when I returned at 1.15 the bird on the nest was singing, so that I presume that the male had resumed incubation during my absence. He was relieved by the female at 1.20, and he relieved her again at 1.36. She relieved him at 1.40, and he relieved her at 1.43. At 1.54 p. m. he left the nest and went to the oaks, where he sang a little. The nest was left uncovered until 2.02, when a bird went on it which I presumed to be the female, as it remained silent. I ceased observing at 2.05. During the hour and twenty-five minutes between 12.40 p. m. and 2.05 p. m. the pair had exchanged places on the nest eight times, the intervals between reliefs being sometimes as short as three, four, or six minutes. It is interesting to note that Allen[1] describes a

[1] The Auk, XXXIII, 1916, pp. 53–56.

similar rapid exchange of duties on the part of a pair of Rose-breasted Grosbeaks on the afternoon on which their young were hatched.

A bird was observed on the nest at 4.30 p. m. and again at 7.20 p. m., at which latter hour I climbed the nesting-tree. The bird on the nest sat as closely as had been usual for several previous days, but finally departed without uttering a sound. The nest contained three eggs and one young bird, but no pieces of egg-shell. I have not yet discovered how this species disposes of the shells of hatched eggs. The young bird did not raise its head while I looked at it. I descended quickly and the parent bird soon returned to the nest.

June 30. At 4.35 a. m. I climbed to the nest, frightening off the female, and found that it still contained three eggs and one young bird. When I touched the nest the young bird lifted its head and opened its yellow mouth for a moment, then dropped back to its prostrate position and would not stir again.

A bird was seen on the nest at 4.25 p. m. and again at 5.05 p. m. At the latter hour I went up to the nest and found that it held two eggs and two young birds.

July 1. One of the Vireos was observed on the nest at 9.27 a. m., and at 9.28 I climbed the nesting-tree. After I had reached my highest point, with my head about a foot below the nest, the sitting female still remained at her post, turning her head from side to side and eyeing me intently. The male was singing loudly at this time from the oak trees. Finally I raised my hand toward the female, which left the nest silently, disclosing one egg and three young birds. The young did not raise their heads or move at all when the nest was touched. Although they had been hatched on three successive days, I was unable, by looking at my mirror, to tell them apart. As far as I could see, they were all entirely naked, except that all had gray down on the upper surfaces of their wings and a few tufts of similar down on their heads.

The nest was observed at 11.00 a. m. and at 12.20 p. m., and a bird was seen on it each time.

At 4.30 p. m. I climbed to the nest and found no bird on it, although the male was singing nearby. About the time I reached the nest the female flew into the next tree and perched on a bare

branch in plain sight about ten feet away from me, where she watched me closely, but made no sound. In her bill she carried food, which looked like a small, whitish, naked caterpillar, and which she herself swallowed after a minute or two of watching. In the nest I could see no egg, simply a huddled mass of naked young birds. I inserted one finger among them and felt gently about until I assured myself that there was no egg there. At 4.35 p. m. I descended.

It will be noted that the first, second, and third young birds were hatched in fourteen days after the laying of the first, second, and third eggs, respectively. The time required for the incubation of the fourth egg lies somewhere between thirteen days, three hours, twenty-eight minutes and thirteen days, eleven hours, sixteen minutes. If all the eggs were warmed alike when a bird was incubating, and if the several eggs required equal amounts of incubation to cause hatching, it would appear that incubation began as soon as the first egg was laid, but that it was more broken and ineffective between the laying of the third and the fourth eggs than at other times.

At 4.37 p. m. the female returned to the nest, inspected its contents, and then flew away. At 4.41 she returned, carrying in her bill what appeared to be a small, dark, naked caterpillar. After feeding this to the young, she began brooding them. At 5.16 p. m. she suddenly left the nest and flew to another branch of the tree, but returned immediately to her brooding. At 5.38 p. m. she left the nest, being immediately replaced by the male, as I suppose. This bird left the nest at 6.18. At 6.21 a Vireo came to the nest and sat on its edge. It may have fed the young, but I could not see it clearly. After a few seconds it flew away again, but a bird came back at 6.24 and immediately resumed brooding. It left the nest at 7.14 and a bird went on the nest at 7.16. It left at 7.28 and one went on at 7.32. I cannot say whether these last observations were of two birds exchanging places or of one bird going and returning. During these three hours from 4.30 p. m. to 7.30 p. m. on this date the young were fed once, or perhaps twice at most. I ceased observing at 7.33 p. m.

July 2. The female was on the nest at 6.00 a. m., but the male replaced her at 6.27 and continued brooding until 6.34 a. m., when I departed.

A bird was observed on the nest at 12.00 m., 12.25 p. m., 6.10 p. m., and 7.09 p. m., indicating very steady brooding at this age of the young.

At 7.09 p. m. I climbed to the nest, the female Vireo sitting on it as closely as she had done on the previous day, but finally leaving in silence. The male in the oak trees sang steadily while I was climbing the tree, but became silent after the female had left the nest. The four young birds could now be plainly distinguished, although they still lay huddled together in an inert mass, with backs uppermost and with head and wings drooping, as though they were utterly exhausted. They were noticeably larger at this time than they were on July 1, and the down on them was more conspicuous. When the nest was touched one bird only lifted its head and silently opened its mouth for a moment, then collapsed again. On account of the way in which the birds were crowded together I was unable to observe whether or not they differed noticeably in size. I descended at 7.14. At 7.21 the female resumed brooding, and she was still on the nest when I left the vicinity at 7.26 p. m.

July 3. On this date I witnessed what appeared to be a family quarrel, although it may have been interference by some third adult bird. During it all I saw and heard but two Philadelphia Vireos in the vicinity, however, and they were quite evidently a male and a female.

Observation began at 6.16 a. m., when one bird was on the nest, while no song of the species was to be heard. No change was noticed until 6.24 a. m., when the male began singing among the oaks. A moment later, still singing, he flew to a perch near the nest. The next instant there was a series of excited squeakings, and both birds were away in a mad chase, fighting at frequent intervals with one another, apparently without mercy. They would circle around and around, passing repeatedly through the nesting-tree, then turn face to face in the air and struggle furiously, with much fluttering of wings and sharp clicking of bills, until often they fell nearly to the ground. After the first

few seconds the squeakings stopped and shortly afterward the male began to sing as he fought. As the birds passed through the tree they would sometimes alight for a moment, two or three feet apart. After the briefest of pauses the female would attempt to fly back to the nest, when the male would dash after her again and the fight would be resumed.

At 6.28 a. m., after four minutes of conflict, the female succeeded in getting back on the nest, where she uttered some song notes in a voice so low that they were scarcely audible. At the same time the male sang from a perch a few feet from her. At 6.29 he approached the nest, the female flew off, and another sharp struggle ensued. At about 6.30 the male flew to a distant oak, where he continued to sing, while the female disappeared. The female returned quietly to brooding the young at 6.36. At 6.44 the male ceased his singing and drew near to the nest by short flights from branch to branch. When he was but two or three feet away, the female flew from the nest, and the pair fought again, while the male sang. Mingled with the song I this time heard repeated squeakings and one utterance of the scolding note. At 6.45 the female went on the nest, where she uttered two loud song notes, while the male, in full song, returned to the oaks. At 6.46 the female left the nest and flew away, not going near her singing mate. The male soon stopped singing, but at 6.54 he began to sing from a tree near the nest, after which he went on the nest to brood, and there sang repeatedly in a low voice. A minute or so later he flew back to the oaks, where he sang loudly.

At 6.59 a. m. I climbed to the nest. Before I left the ground I could see no bird brooding, but when I arrived near the nest I found the female on it. She did not sit quite as closely as she did on the two previous days. The young birds appeared little changed, although the down on their heads was noticeably thicker and darker. When the nest was first touched two of them raised their heads and silently opened their mouths for a moment, but they would not repeat the movement.

A bird was seen on the nest at 7.25 a. m., 12.00 m., and 12.25 p. m. The nest was observed to be uncovered at 5.07 p. m., 6.06 p. m., and 6.38 p. m. At the last-named hour I climbed the

nesting-tree and found the young noticeably larger; fully twice the size that they were when first hatched. The down on their heads had increased and down had appeared across their backs between their wings. For the first time they were heard to utter a note, a simple "Peep, peep, peep," etc., very low and faint. It was loud enough to bring the female to my side, however, while the male began to sing from the oaks. Instead of being silent, as always when I was at the nest before, the female uttered excited squeakings (not the true scolding-note) from a perch within three feet of me. She soon became silent and disappeared. I reached the ground at 6.46 p. m., and, on stepping back to look at the nest, saw that the female had already returned to it.

(To be continued.)

NOTES ON ORTALIS VETULA AND ITS ALLIES.

BY W. DEW. MILLER AND LUDLOW GRISCOM.

A. THE STATUS OF ORTALIS V. MCCALLII BAIRD.

IN 'Isis,' 1830, page 1112, Wagler described *Penelope vetula*. A translation of the Latin is as follows: "Olivaceous; the head and ears slaty gray; the flanks, crissum, and tibia brownish; the epigastrium and belly subrufescent; tail feathers above bronzy green with snow-white tips. The length, 18 inches; longest tail feathers, 9.70; the shortest, 6.50. Mexico."

In 1858 Baird[1] described *Ortalida mccallii*, the length being given as 23.50; wing, 8.50; tail, 11 inches. He admitted feeling considerable uncertainty as to the proper specific name of his subject. His description was based on one specimen from Nuevo Leon with no other Mexican material for comparison.

Ridgway[2] gives a synopsis of the races of *Ortalis vetula*. *O. v. mccallii* is given from Vera Cruz north to lower Rio Grande Valley; *O. v. plumbiceps*, described by Gray in 1867, from southern Mexico to Guatemala; and last he describes *O. v. pallidiventris* from Yucatan. It is significant that no *O. v. vetula* is given. In a footnote

[1] Rep. Expl. & Surv. R. R. Pac., IX, 1858, 611.
[2] Manual of North American Birds, 1887.

under *mccallii* Mr. Ridgway comments as follows: "It is possible that this (*mccallii*) may be the true *O. vetula* of Wagler, which seems to agree exactly in color with *O. mccallii;* but the size of the former is much smaller, the length being given as 18 inches, the tail 9.70. The locality is given as simply 'Mexico,' and it may be that a fourth local race, to which Wagler's name is strictly applicable, may exist in some portions of Mexico, specimens from which have not come under my observation."

So much for American expressions of opinion. In England Sclater and Salvin revised the family in 1870,[3] rejecting *mccallii* and other races described up to that time; a policy followed by all other writers except Sharpe in the 'Handlist of Birds.' He admits all the races described except *O. plumbiceps* of Gray from Guatemala and Honduras. He gives the range of *O. vetula* as southern Mexico to Honduras; and presumably, therefore, considers *plumbiceps* a synonym of true *vetula.* While Wagler's original description of *vetula* is seen to be very meager, this treatment of the question is obviously erroneous, as one of Gray's chief characters for his *plumbiceps* is the rusty white tips to the lateral tail feathers, which cannot be reconciled with the snowy white tips insisted upon by Wagler; while *plumbiceps* is a darker bird throughout.

It will be seen, therefore, that *O. v. mccallii* has no status abroad except for the 'Hand-list,' and that its sole character in American opinion is an alleged larger size founded on one specimen. Further, the combination *O. vetula vetula* has never been applied to any bird anywhere. An excellent series of the species before us shows that the supposed differences in size are easily accounted for by great individual variation, and further that Texas specimens actually average smaller than specimens from Mexico, the exact reverse of the supposed facts. Finally all these birds from Texas to Vera Cruz have passed in America as *O. v. mccallii.* As all birds from other Mexican localities and southward, of several valid races, do not possess pure white tail tips, it is impossible to identify any of them with *O. vetula* (Wagler). It is obvious therefore that *O. v. mccallii* Baird is a pure synonym of *O. v. vetula*

[3] P. Z. S., p. 538.

(Wagler). This was described, be it remembered, from "Mexico." As there are now known to be several races in Mexico, and as we consider that Wagler's description is recognizable on the basis of the snow-white tail tips, we hereby designate Tampico, Tamaulipas, Mexico, as the type locality.

MEASUREMENTS OF WING.

S. Texas	6 ♂	194–214	8 ♀	186–204
Nuevo Leon	5 ♂	211–219	1 ♀	199
Tamaulipas	4 ♂	214–222	1 ♀	201
Vera Cruz	1 ♂	219	1 ♀	202

B. SYNOPSIS OF THE RACES OF ORTALIS VETULA.

A study of our material of this species shows not only that the various races described in the past, except *mccallii*, rest on valid characters, but also that there are two other races in Mexico that are undescribed.

We are indebted to Mr. Bangs for the loan of the type and two other specimens of *O. v. intermedia*.

1. **Ortalis vetula vetula** (Wagler).

Penelope vetula Wagler, Isis, 1830, p. 1112. Type-locality "Mexico"; by subsequent designation (Miller and Griscom, 1921) Tampico, Tamaulipas, Mexico.

As already mentioned, this race is characterized by snow-white tail-tips, and the crissum is devoid of any rufous tinge. In a large series from southern Texas to extreme northern Vera Cruz, Texas birds are usually lighter on the belly, and average smaller; but these differences in our opinion are too slight for subspecific separation.

2. **Ortalis vetula jalapensis** subsp. nov.

Subsp. Char.—Similar to *O. v. vetula*, but head darker gray; upper parts and wings decidedly browner; tips of the tail feathers ashy buff proximally to dirty white distally, never snow-white; middle of belly isabelline-brown instead of light ashy brown or whitish; flanks and crissum fulvous-brown, rather than buffy brown (Ridgway) or saccardo umber (Ridgway). Wing, 202; tail, 261; culmen, 21; tarsus, 62.

Type.—No. 68729, Amer. Mus. Nat. Hist., ♀ ad., Jalapa (alt. 4400 ft.), Vera Cruz, Mexico, April 7, 1897, coll. F. M. Chapman.

For remarks, see under the next race.

3. **Ortalis vetula fulvicauda** subsp. nov.

Subsp. Char.—Similar to *O. v. jalapensis,* but much darker; the upper parts deep olive-brown with no shade of gray; tail-tips dirty brownish buff proximally, paler distally; lower throat and breast much browner; belly scarcely paler than chest; flanks and crissum deep fulvous brown.

Type.—No. 74566, Amer. Mus. Nat. Hist., ♂ ad., Tolosa, Oaxaca, Mexico, Dec. 20, 1900, coll. by A. E. Colburn and Percy W. Shufeldt.

No.	Sex	Wing	Tail	Culmen	Tarsus
74566 A. M. N. H.	♂	207 mm.	267 mm.	25 mm.	65.5 mm.
74567 "	♂	211	260	25	64
74568 "	♂	208	255	26	65

Remarks.—This race is the dark extreme of *Ortalis vetula,* and can be separated at a glance from any other race. Our three specimens are all from Tolosa, Oaxaca, on the western slope of the mountains which form the boundary between Oaxaca and Vera Cruz. We have not been able to determine the altitude. *O. v. jalapensis,* from the eastern slope of the same mountains, is exactly intermediate between this race and *O. v. vetula* from the lowlands of northeastern Mexico, and intergrades might be expected. In spite of the fact that it is intermediate, however, it is told at a glance from the latter race by the difference in color of the tail-tips and other good characters, and seems, therefore, fully worthy of a name. In color it much more closely resembles *O. v. plumbiceps* and *O. v. intermedia* with which it is not geographically related. From both it can be distinguished by the darker belly, which is much less contrasted with the chest and crissum; the crissum in the two other races is tinged with rufous. It is much larger than *intermedia,* and the tail-tips are not so strongly bicolored as in *plumbiceps.*

4. **Ortalis vetula plumbiceps** Gray

Ortalida plumbiceps Gray, List of Birds, Part V, Gallinae, p. 11, 1867. Type locality, "Honduras, Guatemala."

This race was described from Guatemala and Honduras, and we are able to extend its range southward to the highland region of central Nicaragua, on the Pacific slope, where it is a common bird. We have seen no specimens from other localities. In color it is closest to *O. v. jalapensis,* a relationship which has al-

ready been discussed. Its chief character is the strongly bicolored tail-tips, which are rufous to rusty proximally, and grayish buff to almost pure white terminally.

Measurements of this race as given by Gray are scarcely satisfactory:

No.		Sex	Wing	Tail	Culmen	Tarsus
102405	A. M. N. H.	♂	202 mm.	269 mm.	26 mm.	70 mm.
143644	"	♂	214	256	27	69
143645	"	♀	187	240	24	65

5. **Ortalis vetula intermedia** Peters.

Ortalis vetula intermedia Peters, 'Auk,' 1913, p. 371. Type locality, Camp Mengel, Terre Quintana Roo, Mexico.

This excellent race is the nearest approach to *O. v. pallidiventris*, and is a connecting link between it and *O. v. plumbiceps* further south. It is possibly the smallest of the races, and in this respect would not be intermediate, but our series is too small for final judgment. The best color characters by which to separate it from *plumbiceps* are the light isabelline instead of fulvous brown abdomen and the comparatively uniform tail-tips.

6. **Ortalis vetula pallidiventris** Ridgway.

Ortalis vetula pallidiventris Ridgway, Manual of North American Birds, p. 209, 1887. Type locality, "Yucatan."

This is the palest and grayest race of *O. vetula*, and is strikingly distinct from its nearest relative *O. v. intermedia*, the light grayish-olive back with no brown tinge being a unique character in the group.

Measurements of *pallidiventris* have apparently never been given. Two males from Chichen-Itza in the American Museum collection measure as follows: an adult—wing, 199; tail, 240; culmen, 23; tarsus, 70; and an apparently young bird—wing, 176; tail, 212; culmen, 24; tarsus, 68. It is closest to *intermedia* in size, with a proportionately longer tarsus.

The outlying forms, *O. v. vetula*, *O. v. fulvicauda*, and *O. v. pallidiventris*, if compared with each other alone, would unhesitatingly be given specific rank. The intermediate races, which serve as

connecting links, are on the other hand easily distinguished and geographically separated from each other.

C. STATUS OF ORTALIDA RUFICRISSA SCLATER AND SALVIN.

This species was described in 1870 in a footnote to the authors' Monograph of the Cracidae.[1] The single specimen came from Valle Dupar, on the south side of the Sierra Nevada of Santa Marta, Colombia, at an altitude of 400 feet. The authors compare it to *O. vetula*, but state that it is distinguished by the rufous crissum and the very broad white tips to the tail-feathers.

The type remained unique for over forty years, and the bird must be rare, as the collectors of Mr. Bangs and the American Museum of Natural History failed entirely to discover it. As a result it has had a chequered career. Sharpe omits it entirely in the 'Hand List.' Grant, in the British Museum 'Catalogue of Birds,' recognizing nothing but *O. vetula*, gives its range from southern Texas to Colombia. The species is also given by Salvin and Godman in the 'Biologia Centrali-Americana' in the synonymy of *O. vetula*.

The second known specimen was collected by M. A. Carriker, Jr., April 28, 1914, at Dibulla, Sierra Nevada de Santa Marta, and we wish to express our indebtedness to Mr. W. E. Clyde Todd, of the Carnegie Museum, Pittsburgh, for his courtesy in forwarding this bird for our examination.

There is no doubt of its close affinity to *O. vetula*. In plumage it is a curious combination of several races of *O. vetula*, but has certain characters all its own, which in connection with its geographical isolation, and the strong improbability of connecting links in Central America, entitle it in our opinion to specific rank. The special characters are: (1) the bright rufous-chestnut crissum, the nearest approach to which is in *O. v. plumbiceps*. (2) The very broad pure white tail-tips, the extent of which is unique. Taking the third feather, and measuring along the outer side of the shaft, in *O. vetula* (including all races) the variation is 19.5–34.5 mm.; in *O. v. vetula*, 20–32 mm.; while in *ruficrissa* the white area measures 44 mm. (3) Forehead and feathers of malar

[1] P. Z. S., June 9, 1870, p. 538.

region, bordering the naked throat-patch, black instead of gray, due to the lack of development of the webs. (4) Central tail-feathers not tipped with lighter. (5) Tail proportionately shorter and less graduated. (6) Upper parts less uniformly colored than any race of *O. vetula,* the rump and upper tail-coverts browner. (7) Flanks light rufous. With these exceptions the head is similar to *O. v. plumbiceps;* throat and chest nearest to *O. v. jalapensis;* belly intermediate between *O. v. intermedia* and *O. v. pallidiventris,* and scarcely differing from some specimens of *plumbiceps;* anterior upper parts as in *O. v. jalapensis,* but rump and upper tail-coverts as in *O. v. fulvicauda;* tail-tips in color as in *O. v. vetula* Soft parts (collector's notes): iris, red-brown; feet leaden blue; bill black apically, leaden basally. Wing, 212; tail, 253; culmen, 28; tarsus, 65.5.

The species will therefore stand as *Ortalis ruficrissa* Sclater & Salvin.

The following key is offered as a partial aid to future investigators:

A. Light tail-tips more extensive (tip of 3rd rectrix 44 mm.); tail-tips pure white combined with bright rufous crissum. (Santa Marta, Colombia).....*O. ruficrissa*

AA. Tail-tips less extensive (tip of 3rd rectrix 19.5–34.5 mm.); tail-tips not pure white, or if pure white, crissum not rufous.....*O. vetula*

B. Tail-tips snow-white (S. Texas to N. Vera Cruz)....*O. vetula vetula*

BB. Tail-tips not snow-white.

C. Back grayish olive (Yucatan).....*O. v. pallidiventris*

CC. Back olive-brown.

D. Underparts darker and browner; middle of belly not lighter than chest (Oaxaca).....*O. v. fulvicauda*

DD. Underparts lighter and less brown; middle of belly noticeably lighter than chest.

E. Tail-tips noticeably bicolored, distinctly rufous proximally (Guatemala to N. Nicaragua).....*O. v. plumbiceps*

EE. Tail-tips scarcely bicolored.

F. Entire underparts and tail-tips darker and browner; size larger, wing (♀) 202. (Mts. of Vera Cruz) *O. v. jalapensis*

FF. Entire underparts and tail-tips lighter and less brownish; size small, wing 172–184. (Quintana Roo) *O. v. intermedia*

American Museum Nat. Hist., N. Y.

FURTHER NOTES AND OBSERVATIONS ON THE BIRDS OF HATLEY, STANSTEAD COUNTY, QUEBEC, 1919.

BY H. MOUSLEY.

THE season of 1919 has been the most eventful that I have experienced so far, during the past nine years. The weather conditions have not been altogether ideal, the great amount of humidity, and at times electricity in the air, making field work somewhat trying. The month of June was unusually hot, more nearly resembling July than Junes of former years, the temperature in the first week, ranging from seventy degrees in the early morning, to over ninety in the afternoon, and this state of things lasted on and off, more or less, throughout the remainder of the month, and that of July also. This prolonged spell of heat had a marked effect on the bird life of the district; judging from the increased number of Ruffed Grouse to be found in the fall, as compared with the last two or three years, when very wet Junes, depleted the young broods to an alarming extent. Strange to say, the very cold winter of 1917–18, as I have already remarked in my paper in 'The Auk' for October, 1919, produced a number of very early spring records, whereas the comparatively mild and open one of 1918–19, which one might naturally have expected to give rise to a crop of these records, failed to produce anything very startling. Two Robins were, however, seen on March 2, eighteen days ahead of time, and Prairie Horned Larks appeared on February 18, ten days ahead of any previous record. A Crow was seen on February 13, and a Brown Creeper on March 21, the former being twelve days ahead of time, and the latter twenty-three days. These four items, however, form the principal early records, although there were about a dozen others, which ranged from one day to seven days in advance of former years. In the fall however, the hot summer and comparatively mild weather prevailing towards the end of September, seem to have given rise to some unusually late records, especially amongst the warblers, the Nashville, Tennessee, Northern Parula, Magnolia, Black-poll and Blackburnian, being found well into the first week of October—a thing that has never occurred before.

Some of these records, such as that of the Nashville and Blackburnian, are as much as twenty-five days later than in previous years, the first named being seen as late as October 18, whilst the Ovenbird, Bay-breasted, Cape May and Chestnut-sided Warblers lingered into the last week of September, these records also ranging from eight days to twenty-two later than in previous years. The records of the Limicolae have been few and far between, owing to the almost drying up of "the marsh," but I was fortunate on June 2 and August 7, in observing two Semipalmated Sandpipers, a bird that has been absent for the past three years. This last remark applies almost equally well to the Lesser Yellowlegs, Pectoral Sandpiper and Semipalmated Plover, birds that at one time I used to see more or less regularly every year, but which now seem to have entirely deserted the district. A Wilson's Snipe was observed on April 27, and again in the fall on August 24, both of these dates forming early records. A couple of Killdeer (a bird rare in these parts) were on the marsh on August 11, and a pair were seen in a dry hilly pasture, about seven miles from Hatley on May 6, which may possibly have remained to breed. Two other noticeable features were the late arrival of the Solitary Sandpiper, which was not seen until May 23, and the failure of the Great Blue Heron to put in an appearance at all, in the spring, such events never having occurred before. Of the ducks, a pair of Black Ducks put in a record appearance on April 6, as well as two male Red-breasted Mergansers on the thirteenth, and in the fall I obtained a couple of female Blue-winged Teal on September 17, a bird I had never personally seen on the marsh before, which remark applies also to the Mergansers, although they both occur occasionally on Lake Massawippi. But by far the rarest visitors to my little marsh were a pair of Shovellers on May 31, and a Black Rail on September 23, both species being new to my list, and both of them being rare anywhere in this part of the country. Reverting to the land birds again, the only remarkable absentees were Meadowlarks and Migrant Shrikes, the former being seen on six occasions only, throughout the summer and autumn, whilst the latter was only noticed once on April 8. As an offset to this, Baltimore Orioles, Purple Finches, Goldfinches, Ruby-throated Hummingbirds,

Swamp Sparrows and Blue Jays were unusually numerous, whilst the Black-billed Cuckoo was seen more often than usual. Amongst the warblers, the Cape May, Black-poll and Wilson's, were observed both in the spring and fall, the two latter being seen on more occasions than in any previous year. In the spring, however, the Black-poll kept up its reputation for rareness, only one male being seen, the same as in 1917 and 1918, which fact still further strengthens my already expressed opinion that this species does not pass to its northern breeding grounds by way of Hatley. In the fall, however, judging from last year's experience when seven birds, and again this year when thirteen were seen, it now looks as though a portion of the birds pass through Hatley on their return journey south, arriving from the north probably by way of the St. Francis River. At all events this state of things has existed for many years past, both at Montreal and Quebec, where in spring the birds are scarce, but in the fall more general, the same as they are apparently now at Hatley. An unusual wave of the rarer Tennessee Warblers took place in May, when between the twentieth and twenty-sixth, no less than twenty examples were seen. The greatest surprise of all, however, was the obtaining of an example of the rarest of eastern warblers, the Orange-crowned, on September 29. The Warbling Vireo, a bird hardly ever seen since the great Vireo year of 1912, bred in a maple tree opposite my house, and the Philadelphia, the rarest of the Vireos, and a bird I saw only for the first time last year, and that very imperfectly, was quite abundant in the fall, as from September 1 to October 1, I saw it on eight occasions, and obtained two or three examples. I hope this Vireo may be swinging this way, for it is certain from what I now know of it, that it has not been here before last year. otherwise I could hardly have failed to notice it. When seen, it was always in the company of Chickadees or Warblers, more especially the latter—its smallness, sleek appearance and entire yellow underparts being good field marks, differentiating it from the Red-eyed and other Vireos. My little House Wrens bred again in the same locality as last year, this being the only pair I know of in the district. Another pleasing item in connection with this Wren locality was the finding there of a nest of the Olive-sided Flycatcher, and

thus being able to add this somewhat rare and uncommon bird to my breeding list. The nest which was located on July 23 was saddled on a branch of a spruce tree, 37 feet above the ground, four feet from the trunk, and five feet from the tip of the branch, and was composed outwardly of coniferous twigs and usnea lichen, which latter also formed the entire inside lining. Its dimensions were: outside diameter five, inside two and a half inches; outside depth two, inside one and one-eighth inches. What it contained on this date I cannot say, but certainly not young birds, or even incubated eggs, judging from the behaviour of the parents. I was unable to climb to it, and had later on to cut down the tree, before I could obtain possession of the nest. In locating it I adopted the tactics explained in my "Singing Tree" paper[1] and the system worked splendidly, the nest being found well within the magic circle, or just thirteen yards from the favorite "singing" or "observation" tree of the male. This nest was presented *in situ* to the Victoria Memorial Museum at Ottawa, together with that of the Warbling Vireo mentioned above. In the case of the latter, the male sang almost as frequently from the same tree that the nest was in, as he did from an apple tree six yards away. The same thing happened again, when the second nest was constructed, the male occupying the nesting tree, which in this case was also a maple, almost as much as he did the old maple, the site of the first nest, and which he now used as his favorite "singing" tree, it being seventeen yards from the new nest. The time occupied in building the second nest, and laying a fresh set of eggs (which I did not molest), was eleven days. Both nests were in similar situations, and both were alike in construction, in fact everything except height above ground conformed to the tables given in my paper, "A study of subsequent nestings after the loss of the first."[2] Referring to this paper, I was surprised to find that I had not drawn attention to the somewhat interesting fact that second or third nests, as a rule, are built in higher situations than the first, the same as this Vireo's was, the second nest being thirty-seven feet above the ground, whereas the first was only sixteen feet. Can it be that some intuitive or tele-

[1] Auk, Vol. 36, 1919, No. 3, pp. 339–348.
[2] Auk, Vol. 34, 1917, No. 4, pp. 381–393.

pathic influence prompts birds to seek a higher and safer site for their second or third ventures, or is it merely a coincidence in the cases that have come under my notice? It is an interesting problem and will repay further study. Dr. Chas. W. Townsend's Labrador Chickadee (*Penthestes hudsonicus nigricans*) and the Acadian (*Penthestes hudsonicus littoralis*) were both seen and obtained, the former on August 27 and September 26, and the latter on August 12 and September 17, and I can only repeat that the shyness of the former was, as on former occasions, in striking contrast to the tameness of the latter. Possibly the event that gave me as much satisfaction as any was the taking of an example of the Short-billed Marsh Wren (*Cistothorus stellaris*) on September 10. A sight record which I had previously made in May, 1917,[1] may have been looked upon by some with a certain amount of scepticism, and, in thus vindicating myself, I had also the pleasure of being the first to definitely add the species to the Quebec list. The present site was about three miles south of that previously recorded, but the nature of the ground was identical—a low damp meadow—much overgrown with long, rank, tussocky grass, and with a small stream running through the center of it. The bird flushed near this stream, from a tuft of grass, and alighted for a few seconds, low down in an alder bush, and this time I was taking no chances but fired instantly, although at very short range. I sent the bird in the flesh to the Victoria Memorial Museum at Ottawa, and Mr. Taverner tells me they have been able to make quite a respectable skin of it. On September 24, I came across my first Gray-cheeked Thrush. Of the Hawks and Owls I have not much to record, except that an example of Cooper's Hawk was shot on a farm near my house on September 1, whilst in the act of killing a fowl, this bird being new to my list. A Screech Owl (in the gray phase) was taken alive on the veranda of Mr. A. Nichol's house in the village on March 14, but died the following day. This bird was given to me in the flesh and has since been mounted by Mr. Greer, and is now in my possession, it being the second record only that I know of for the district. Wilson's Snipe, which have been re-

[1] Auk, Vol. 35, 1918, No. 3, p. 305.

ported as unusually abundant near Quebec, have almost failed to put in an appearance on the marsh—one on the early date of August 24, and three on September 14 being all that I have seen. A Bobolink was caught on the marsh on October 12 with a damaged wing, but otherwise it was in fine condition and plumage. White-crowned Sparrows were seen on September 18, and Tree Sparrows, which appeared on September 26, are still here October 31. These are the earliest fall dates I have. Fox Sparrows, which are always scarce, were noted on October 20, but only two examples. The last Myrtle Warblers lingered until October 22, just two days short of my previous latest record—October 24, 1916. Having now given a general idea of the season, I will proceed with the annotated list of the new species added since 1918, carrying on the numbering from where it previously left off.

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169. **Spatula clypeata** (Linnaeus). SHOVELLER.—Very rare transient; May 31, 1919. I am indebted to my younger son for being able to add this rare migrant to my list. He and a friend had been fishing in the marsh on the above date, and on coming home to dinner at noon, he casually remarked that they had seen a pair of ducks, one of which was very handsome, and both had very large wide bills, and had allowed a near approach. It can be imagined I hurried through the meal, and at once made for the marsh, and there at the far end, riding lightly on the water, were a pair of Shovellers, which allowed me to approach and watch them for some considerable time, within a distance of twenty yards or rather less. At this range, it required neither a gun nor yet field glasses to prove their identity, for irrespective of the brilliant colors of the male, their extraordinary bills alone formed an easy field mark for identification, and one which my young son had not failed to notice. At length I moved, and the motion I suppose after remaining still for so long, must have startled them, for up they got and headed in the direction of far-off Saskatchewan or thereabouts, where I hope they were successful in rearing a brood, and that next year they will visit "the marsh" again. They are somewhat small ducks, and the female and young at long range, if the bills were indiscernible, might be mistaken for female Blue-winged Teal.

170. **Creciscus jamaicensis** (Gmelin). BLACK RAIL.—Very rare transient; September 23, 1919. Whilst crossing a little stream running through the center of "the marsh," on the above date, I had occasion (owing to the treacherous nature of the ground) to make use of a small

tree trunk that spanned the stream. Finding I was losing my balance by going slowly, I finished the remaining portion of the trunk at a run, as one often does in such cases, and landed with some little impetus in the swampy grass on the other side. Judge of my surprise, when up got a tiny dark bird from almost under my feet, and with feeble and hesitating flight, made for the nearest cat-tail bed just twenty yards distant, into which it dropped abruptly, as if utterly exhausted by its vain endeavors to simulate anything approaching a speed flight. I should certainly have hesitated in publishing this record, had it not been for the fact that the instant the bird rose, the one thing, after its smallness, that impressed itself upon my mind, was the somewhat light appearance of its hind parts, both upper and under, caused by the white spotting and barring, important identification marks, which at the moment were not fully realized, it being a very long time since I had seen a mounted example of the bird. Its flight of twenty yards to the cat-tail bed was low and direct and not more than three feet above the ground. I had ample time to note the plumage through my field glasses, and I am prepared to say with almost the same equal confidence, as I did when giving the sight record of the Short-billed Marsh Wren in May, 1917, that so far as human judgment is free from errors, and can be relied upon, I neither confused the present bird with the young of the Virginia, or any other rail.

171. **Accipiter cooperi** (Bonaparte). COOPER'S HAWK.—Not common transient. On September 1, 1919, a bird of this species was shot by Mr. Albert Hodges on his farm, about a mile and a half to the south of the village, whilst in the act of killing a young fowl. It was shown to me in the flesh on the same day, and proved to be a young male weighing ten ounces. I was able to identify another on September 15, 1919, coming upon it unexpectedly, and thereby getting a good view of it. As far as my experience goes, it appears to be somewhat uncommon here.

172. **Corvus corax principalis** (Ridgway). NORTHERN RAVEN.—Probably now a rare or accidental straggler, but once occurring more generally. In 'The Canadian Naturalist,' 1840, Gosse (who, it will be remembered, once resided near Hatley) speaks of the Raven on page 167 as follows: "The Raven (Corvus corax) occasionally sails over our heads, as he appears to visit nearly every country; but he is not a common sojourner with us; or if he is, he must be generally mistaken for the crow, the chief difference being his superior size." In view of the above facts, I think the Raven is fairly entitled to a place in my list, as no doubt before Gosse's time, when the country was in its wild and primitive state, the Raven may even have bred here. Personally, I cannot speak with any degree of certainty of ever having seen one, although on one or two occasions, certain single crows have appeared to look larger than usual, but this may have been merely light and shade playing a deceptive part.

The only real test I suppose in such cases, would be the seeing of the supposed larger crow, in company with a few real crows, when its greater size, if it was a Raven, would be apparent.

173. **Melospiza lincolni lincolni** (Audubon). LINCOLN'S SPARROW.—Rare fall transient; September 25 to October 15. This sparrow was first seen on September 25, 1918, but through an oversight was omitted to be recorded in my notes for that year. I have not yet come across it in the spring, and only a very few examples have been seen or taken in the fall so far. It is very secretive, and never more than two have been found together, frequenting the hedges and bushes bordering roadsides and fields.

174. **Vermivora celata celata** (Say). ORANGE-CROWNED WARBLER. Very rare transient; September 29 and 30, 1919. It was on the first of the above dates, whilst on my way to some favorite hunting grounds, that my attention was attracted to what, at first sight, appeared to be a somewhat large and dull-colored Nashville Warbler, and I might have let it go at that had not my late constant study of warblers in the field told me that here was something new. On collecting it, judge of my surprise and pleasure to find that not only had I secured the rarest of eastern warblers, the Orange-crowned, but had also created a fall record for the bird, in the Province of Quebec. The only other existing records are one by the late E. Wintle, of a bird taken at Montreal on May 31, 1890, and one by C. E. Dionne, of a bird seen near Quebec on May 13, 1890. In Knight's 'Birds of Maine,' published in 1908, the Orange-crowned Warbler is only included in the hypothetical list, with the inference that there is no authentic instance of its occurrence in the State. In Allen's 'Birds of New Hampshire,' published in 1903, one spring record is given, that of a single bird taken May 16, 1876, by Dr. W. H. Fox at Hollis. There is no autumn record. Miss Alice W. Wilcox, formerly director of the Fairbanks Museum of Natural Science at St. Johnsbury, Vermont, stated in 1916 that so far as she knew, no record of the Orange-crowned Warbler had been made in that State. The above references will, I think, give some idea of the rareness of the bird in these parts, and my good fortune in securing this example, which I sent in the flesh to the Victoria Memorial Museum at Ottawa. On the following day I again visited the vicinity, and my attention was attracted to another individual. This one was flitting about in some small birch trees, on the outskirts of a large wood, in company with two Philadelphia Vireos and a mixed flock of warblers, amongst which was a Blackburnian, two Bay-breasted, two Northern Parulas, and one Nashville, besides many other commoner ones. I had many opportunities of watching this bird, (for I did not molest it), both during the morning and afternoon, and of hearing its sharp metallic chip. In habits it reminded me more of a Nashville than anything else, hopping and flitting about, whilst incessantly

gleaning small insects, and ever and anon giving vent to its sharp chip. I never saw it frequent a coniferous tree, its favorite hunting area being a batch of small birch trees, in several of which it would spend long intervals at a time, going very carefully over them in its incessant search, I presume, for the small aphides that infest these trees. I might here mention that the bird obtained the day previous was shot from a sapling aspen, so that it looks as if small deciduous trees, and no doubt shrubbery, are preferred to coniferous or the taller deciduous trees.

175. **Hylocichla aliciae aliciae** (Baird). GRAY-CHEEKED THRUSH.—Rare transient; September 24, 1919. For some years I have waited in vain for a fitting opportunity of recording this thrush, for although I think I have seen it on two or three occasions, the view has never been sufficiently long or convincing enough to warrant its inclusion in my list. However. on the above date I came unawares upon a thrush standing in a very erect posture, on the bough of a small birch tree, and the light being good I was able to see distinctly that there was no perceptible buffy tinge on either the eye ring or cheeks, the breast being only slightly tinged with this color. In addition to this, the bird certainly struck me at once as being somewhat larger than any thrush I had come across before, and for these reasons I have no hesitation in now including it in my list of Hatley birds, especially, as very soon afterwards, I was able to compare it with an Olive-backed Thrush, which was also in the immediate neighborhood.

Hatley, Que.

BOHEMIAN WAXWING (BOMBYCILLA GARRULA) IN NEW ENGLAND.

BY HORACE W. WRIGHT.

ON February 12, 1919, in a walk around Chestnut Hill reservoir, Boston, I came upon a flock of about thirty Cedar Waxwings (*Bombycilla cedrorum*) in a plot of berry-bearing shrubs situated near the reservoir basin. The Cedarbirds were flying back and forth from one shrub to another for the berries and were giving their characteristic sibilant notes. But I heard another call than theirs, and yet saw no other bird than waxwings. The call consisted of several *chips* given in close repetition, not as separate calls, but forming one call, slightly rolled together like a short trill and constituting a chatter, repeated after an interval. Soon the bird from which these calls came, presented itself fully to view upon a branch of a low tree standing among the shrubs

and rising some ten feet higher than they. In size it was distinctly larger than the Cedarbirds, and gradually all the features which differentiate *garrula* from *cedrorum* were clearly observed one after another; namely, the entire absence of yellow on the underparts, which were pure gray; the definite chestnut patch of the under tail-coverts; the tint of a similar color on forehead and cheeks extending up on to the crest feathers, especially the sides of the crest; the greater size of crest as compared with that of *cedrorum;* the tips of the primary coverts and secondaries white, definitely so marked, but not conspicuously, indicating, perhaps, the individual as a female or immature male; an absence of yellow on the tips of the primaries, further suggesting that the bird was not an adult male, although the variation in these markings may be individualistic and not due to sex or age. It also lacked the red sealing-wax-like tips to the secondaries, and the band of yellow at tip of tail was not broader than *B. cedrorum* possesses.

This Bohemian Waxwing was again seen on the 17th, when Mr. A. W. Upham was my companion. As before, it was in company with a flock of Cedar Waxwings, on this second occasion numbering about forty birds, and the flock was feeding in the same plot of shrubs. The chatter call was again heard, but only two or three times. And presently the flock took wing far away over a neighboring hill, gone evidently for a while or until desire for food would bring it back again. My first observation had been for a half-hour from about 11.30 to 12 m., and I had then left the flock in the locality where found. This second observation was at about 9.45 a. m., and within ten minutes the flock took its long flight over the hill. We were interested to observe that in their flight the Bohemian closely accompanied its companions, but all the time a little separated from the close bunch which the Cedarbirds constituted, and appearing even at considerable distance in the sky distinctly larger than they.

Mr. Upham has given me this description of the note or call as he heard it on this occasion, and the description has the value of being given by one whose ear has been musically trained. Mr. Upham states: "Of course, I only heard it two or three times. The note or call that I listened to, I would describe in this way—a short, rapid, wooden, and unmusical trill. The Maryland

Yellow-throat has a call which bears some resemblance to it, and it seemed to me that it is very much like the peculiar 'chatter' of the Barn Swallows, with which they intersperse their more musical twitterings."

Mr. Charles E. Clark has informed me that on the 16th he saw the *B. garrula* with the flock of *B. cedrorum* between 9 and 10 A. M. near the bank of the reservoir at a point only slightly removed from the plot of shrubs. He states that the *garrula* was first seen perching on a large bough of an oak tree standing beside the park drive, and the *cedrorum* were flying back and forth to red cedars on the bank; that it took several mouthfuls of melting snow, there being a small accumulation on the larger branches, and visited a nearby cedar.

On February 18, Mrs. Edmund Bridge, Miss Annie W. Cobb, and Mrs. E. R. Jump together had an interesting observation of this Bohemian Waxwing. Mrs. Bridge informs me that they reached the locality about 9.15, and that the flock was in the plot of shrubbery when they arrived. Mrs. Bridge states: "The Bohemian Waxwing kept rather to itself on a bare twig. The only note heard was a loud, oft-repeated *chip* like a Chipping Sparrow's call." It is further stated that the birds after feeding on the berries flew down upon the stones embedded in the shore of the reservoir and drank, and then about 10 o'clock, as on the preceding days, took their long flight over the neighboring hill.

Mrs. Grace King Earle reports that with her son she observed this Bohemian Waxwing, together with a few of the flock of Cedar Waxwings, on February 24, at 8.30 a. m.; the birds were still feeding in the triangle of shrubs. Mrs. Earle writes: "My son noted that the Bohemian Waxwing gave a sort of harsh rattle. In their flight the Bohemian kept quite a little to one side of the others."

Miss Bertha E. Davis informs me that on March 2, between 9.30 and 10 a. m., she saw this flock of Cedar Waxwings with the Bohemian in the same locality and was impressed with the Bohemian's quite distinctive note.

Miss Nora K. Holman writes that on this same day, March 2 in the afternoon at about 3.15, she saw this Bohemian Waxwing with about twenty Cedarbirds in hawthorns near the shore of the

reservoir, feeding on the berries. Miss Holman states that she viewed the Bohemian at a distance of ten feet only and observed the chestnut under tail-coverts.

I visited the Chestnut Hill section on February 28, March 7, 20 and 22, but saw no waxwings on either occasion. On March 22, however, as I approached the grounds of an estate on Hammond Street, just westward from the reservoir, I heard a noisy chatter unlike any bird voicing with which I had been familiar, but unfortunately this chattering ceased before I had opportunity to investigate, and I was, therefore, unable to determine whence it proceeded. I saw no waxwings, but the chatter was very suggestive of the notes I had heard when viewing the Bohemian on the first occasion, February 12. I am informed that many observers from day to day unsuccessfully sought to see this Bohemian after its presence had become known. But the wandering habit of waxwings would explain its lack of continuous daily constancy to one location, although occasionally reappearing there up to March 29, when its latest appearance was recorded.

It may be mentioned that on January 30 I had noted a flock of about thirty Cedar Waxwings in a big willow standing beside Beacon Street as it leads by the reservoir to Newton, and less than an eighth of a mile from the feeding ground later adopted by the flock. But on this occasion I heard no other calls than the lisping notes of the Cedarbirds, and upon looking the flock over they all appeared to have the yellow underparts. So my inference is that the Bohemian Waxwing, which became a companion of the flock, was not present with it on January 30. If it is correct to assume that *B. cedrorum* had moved up from the south on the early migration which brings the species to eastern Massachusetts in late January and in February, and that the *B. garrula* had gradually extended its flight from the far northwest along the northern tier of States to Boston, we may assign the meeting of the two types to a time between January 30 and February 12, on which date we have our first knowledge of the presence of the Bohemian. One individual only was seen on the several occasions. This bird evidently gladly availed of the companionship which its more southern relative afforded and became a constant member of the flock of *cedrorum*, without,

however, becoming an integral member thereof, as evidenced by its slight separateness in their longer flights and also when perching, which suggests that, when the time came for its return across country for northwestward, it would experience no difficulty in making this habitual slight separateness a complete separation.

Several other records of Bohemian Waxwing in Boston and vicinity in the season of 1919 have come to my knowledge through Mr. E. H. Forbush, State Ornithologist of Massachusetts, who has kindly placed them at my disposal, furnishing me the names and addresses of the several observers, that I might receive direct from them such detailed testimony as they were able to give.

Mr. A. M. Wilcox, of the Roslindale district of Boston, writes me that he saw five Bohemian Waxwings there about January 20, feeding on *Crataegus* berries; that they were seen twice in the same tree within an hour; that no Cedar Waxwings were with the Bohemians nor any in the near vicinity; that the distinguishing characteristics were the larger size and conspicuous white color on the wings; that he watched all winter and spring, but failed to observe the species again; that he is well acquainted with the common Cedar Waxwing; and that he has no doubt of the identification.

Miss Addie B. Hobbs states that at Essex, in the afternoon of March 8, she saw a Bohemian Waxwing with a large flock of Cedarbirds; that they seemed restless and easily disturbed; that each time they flew one bird remained somewhat behind the others; that resorting to a creeping approach she at length got within close range of the laggard of the flock and saw that it was a grayer bird than the Cedar Waxwings; that, as it turned, the white in the wings showed very plainly; that its crest had a ragged look compared with those of the Cedarbirds; and that it seemed quite fearless.

Mrs. George H. Mellen, of Newton Highlands, testifies that on March 29, the morning being cold and stormy, when at breakfast about 7.45, she saw from the dining-room bay a large flock of birds approaching the house. The flock settled on the trees and ground just outside. Quickly procuring her glasses, Mrs. Mellen perceived a Bohemian Waxwing about twenty feet from the window. She states that the thing which impressed her

most was the distinctness with which the bird stood out from the rest of the flock; that she had supposed detection would be difficult, but that no one accustomed to bird study could have failed to notice this bird, if looking over the flock with care. Everything was covered with wet, slippery snow, and all the birds were in more or less unusual attitudes as they could not find foothold. The Bohemian had his tail pushed down, much the same as a woodpecker, or as a Song Sparrow droops his, and thus well displayed the under tail-coverts. There were seventy-five to eighty birds in the flock. Mrs. Mellen's home, "Birdbanks," is about two miles from the Chestnut Hill reservoir in an air line, or possibly somewhat less. It is not unlikely that the Bohemian which she observed on March 29 was the bird which had been seen repeatedly in the grounds of the reservoir. And yet, in the light of the testimony which has been gathered, it may not unlikely have been another individual.

Mr. and Mrs. Gordon B. Wellman found a Bohemian Waxwing with a flock of about forty Cedar Waxwings beside a reservoir in Malden on April 25. On the following day, in company with them and Mrs. Edmund Bridge, I viewed the bird in the same locality, and it was again seen by the Wellmans on April 27. This was an occurrence of the species much later in the season than would be expected, and indicates that the Bohemian Waxwing, like the Evening Grosbeak, may be slow in taking its return flight to its far northern breeding grounds. My own records of Evening Grosbeaks indicate that ten individuals were still present in Chusted Park on the Brookline side on May 6, 1916, and I was informed that still later records of a few individuals there were obtained.

Dr. Thomas Barbour, in the October, 1919, issue of 'The Auk,'[1] states that at Beverly Farms, Massachusetts, there still remained in May [1919] a portion of a flock of seventy-five to a hundred Evening Grosbeaks which had appeared there about March 10, which portion was first seen about May 14 and did not disappear from the neighborhood until the night of May 19. Mr. F. C. Smith, in the same issue of 'The Auk,'[2] states that from May 5

[1] 'Auk,' XXXVI, Oct. 1919, p. 572.
[2] *Ibid.* p. 573.

to 10 [1919] at Boonville, N. H., he daily observed a flock of twenty Evening Grosbeaks, but that when again there on the 15th he could not find any of the birds. Thus it may be regarded as not unusual for some Evening Grosbeaks, when there has been a visitation of them during the winter and spring, to remain well into the month of May before disappearing.

Three other Massachusetts records for the season of 1919 which Mr. Forbush has transmitted to me, all from the western section of the State, are:

Greenfield, on testimony of Mr. Lyman T. Ruberg in a letter of March 10. Mr. Ruberg writes: "On Tuesday, February 25, about 10.30 A. M., I saw two Bohemian Waxwings. They were feeding on sumac tops in the Green River Valley, about four miles out of town. I should say that they were both males, as the wing markings were very distinct and the crest was prominent. I had a good look at them and am certain what they were. These birds were alone, no others with them." Mr. Ruberg has been a deputy fish and game warden for several years, Mr. Forbush informs me.

South Deerfield, on testimony of Mrs. J. E. Richards, who writes under date of February 26: "Last week two Bohemian Waxwings visited us. We know that they were not Cedarbirds from the white on the wings. We did not see the chestnut under tail-coverts of the waxwings, but they were not Cedar Waxwings. Of that we are sure. They flew before we had time to note every distinguishing mark." Mrs. Richards is well known by Mr. Forbush as a reliable observer.

West Stockbridge, on testimony of Miss Lottie Kniffin, who states that on February 1 she saw eight or ten Bohemian Waxwings, "white on wings very distinct." Mr. Forbush regards Miss Kniffin as "a very careful and modest observer" who "seems to know birds very well indeed."

These are the records for Massachusetts in 1919, so far as they have come to our knowledge. They constitute a striking contrast to the very few records of all previous years. The species has been so rare in Massachusetts that I had not before seen one, and fellow members of the Nuttall Ornithological Club of Cambridge, who have had life-long experience in field observation, testify that they have never seen one in the State in the wild.

In Howe and Allen's 'Birds of Massachusetts,' published in 1901, nine records are given, namely: a pair near Boston in the autumn of 1832, seen by Audubon's sons (Audubon); a large flock, Boston, of twenty to thirty birds in mid-winter about 1844 (Baird, Brewer and Ridgway); one shot at Williamstown prior to 1858, and now preserved in the Williams College Museum (Chadbourne); eleven specimens captured at Bolton by S. Jillson in January, 1864 (Allen); one seen by Mr. William Brewster in the Cambridge Region [Watertown] in October, 1869 (Allen); several taken near Worcester prior to 1870 and recorded as in the possession of Dr. Henry Bryant (Maynard); a female taken at Lynn on February 18, 1877, by Mr. N. Vickary (Brewster); it is stated, "This is doubtless the specimen labelled 'Lynn' in the collection of the Museum of Comparative Zoology, Cambridge"; [this specimen has recently been transferred to the collection of the Boston Society of Natural History]; one (?) taken during the winter of 1882–83 at Taunton (Copeland, *teste* Bent, *MS.*); and two seen by Mr. C. S. Phillips at Taunton on December 26, 1885 (Phillips).

Mr. Brewster, in his 'Birds of the Cambridge Region' [1906], has expunged from his records the alleged occurrence in October, 1869, the report of which, he states, was not well based, and he does not include the species in his authentic list. The elimination of this record from the nine leaves but eight records remaining, covering the period 1832 to 1885, more than fifty years. Mr. Brewster, however, places himself on record as regarding the earliest two of these eight records as far from satisfactory on account of their indefiniteness. And I find in his editor's footnote to the species in Minot's 'Land-Birds and Game-Birds of New England,' second edition, published in 1895, this statement: "A very rare and irregular winter visitor from the north. The most interesting instances of its occurrence are those given by Mr. Allen, of eleven specimens shot by Mr. Jillson at Bolton, Mass., in January, 1864, and of a single female taken by Mr. N. Vickary at Lynn, Mass., February 18, 1877. I can find no records of its occurrence anywhere in New England within the past fifteen years." The last two Massachusetts records cited above seem not to have been accepted by or else then unknown to the editor. It may be considered, then, that there have not been more than

six published records of the species within the State, which may be accepted as definite, up to the year 1901, and I have been unable to learn of any subsequent record of its occurrence up to the present time, until these occurrences of 1919 which have been recorded in this paper.

Bohemian Waxwings have appeared in other parts of New England, in this season of 1919. Mr. Forbush has received and transmitted to me the following records for Maine:

Mr. W. H. Waterman, Auburn, saw twenty-three Bohemian Waxwings on January 6. He got within fifteen feet of them. And on February 13 Mr. Waterman saw seven Bohemians on a sumac.

Mrs. Herbert Lombard, Gorham, reports seven Bohemian Waxwings on January 25, and a mixed flock of Cedarbirds and Bohemians, not more than five of the latter, on February 8.

Miss Bertha Brown, of Bangor, reports that a member of the Bangor Bird Club, a lady who is a careful observer, saw five Bohemian Waxwings feeding on sumac bushes under her window which looks out on an old garden, February 16, 17 and 21.

Miss Brown, in a letter to me under date of June 18, furnishes one other and a very late record, namely, that on May 29 of this year at Northport, Maine, on Penobscot Bay, where with her sister she has a summer cottage, they observed in an old apple orchard that sloped down to the shore of the bay, a small flock of waxwings, numbering six or seven birds; that one of these was on a low branch very near them, not more than three or four feet away, which from its size and white patches on its wings, they identified as a Bohemian Waxwing. Miss Brown further states that, being intent on reaching a bird at some distance whose calls they were hearing, they unhappily did not stop to examine the other waxwings of the flock, to determine whether there were other Bohemians, but of the identification of the one bird so closely viewed she is sure; that she returned to the vicinity repeatedly, but did not again see that bird; that two days later, and again four days later, she saw small flocks of Cedar Waxwings, three and five respectively, in the same orchard. So Miss Brown concludes: "Whether my one Bohemian Waxwing was associated with a flock of Cedar Waxwings or whether the whole flock that

I saw on May 29 were Bohemian, six or seven birds, I do not know." It may be stated that Miss Brown's records are not called in question by her fellow Maine ornithologists.

Professor William Patten, of the Department of Biology, Dartmouth College, writes me concerning an observation of Bohemian Waxwing by him at Hanover, New Hampshire, the record of which had been sent to Mr. Forbush by Mr. Franklin McDuffie, a student in the college: "Mr. McDuffie was correct in stating that I had reported seeing two Bohemian Waxwings in Hanover on the date reported by him [January 16, 1919]. The circumstances were as follows: I saw the two birds on the top of a larch tree about fifty yards from the window of my lecture room just before the exercise, so that I could not leave the building. I felt confident they were Bohemians, as I know them well from experience with them in Dakota, but I could not distinguish the color, as they were against a very light sky. There was no doubt about the size and the crest. I called in one of my colleagues with younger eyes, and he agreed with me in regard to the crest. Before we could get the glasses the birds flew away. I was not looking for these birds. I did not know until afterward that they had been reported elsewhere in New England at about that time. I have no doubt in my own mind about their identity, but, as you see, the observation lacks something of absolute certainty in regard to wing coloring and other details. About four or five years ago, in the late fall, I saw four Bohemian Waxwings in my front yard and had the pleasure of watching them for a half hour or so within a few yards, when I could see them with perfect distinctness."

Reports from St. Johnsbury, Woodstock, Burlington, Rutland, and Bennington, Vermont, reveal no records by observers in those sections of the State in the season of 1919. Dr. L. H. Ross, of Bennington, writes me under date of April 27, 1919: "No Bohemian Waxwings have been identified in this vicinity this winter, although I have had several observers on the lookout. I have seen flocks of the Cedar Waxwing several times, but could not detect any Bohemian among them. However, I am somewhat hampered in my observations because my field glasses are still on a U. S. submarine."

Correspondence with Mrs. Alice Hall Walter and Mr. Harry S. Hathaway, of Providence, Rhode Island, results in their declarations that they know of no authentic records for this State either in 1919 or in any previous year. Howe's and Sturtevant's 'Birds of Rhode Island' [1899], with subsequent Supplement, does not include the species.

Mr. John H. Sage, of Portland, Connecticut, writes me: "I wish I could give you later Connecticut records than those already published. I have nothing authentic, although two or three people feel quite sure that they have seen the species in our State since 1913." In 'Birds of Connecticut,' published that year by Mr. Sage and co-authors, three records are given, namely: "February 11, 1875, New Haven, one seen (?) (Smith) [Merriam, Birds of Connecticut]; Merriam [*ibid.*] further records that Dr. Wood, of East Windsor Hill, shot one by accident while shooting into a flock of Cedarbirds (specimen now in Athaneum collection, Hartford); fall, 1899, Torrington, one shot from a flock of Cedarbirds (in possession of Hochstein)." Mr. Sage states, in regard to the date of capture of the Atheneum specimen, "The Dr. Wood specimen has been known to me for more than forty years, and I have often talked with the Doctor about it, but he never could give the exact date of capture. It is a beautiful specimen and is still in fine condition."

To extend the inquiry further as to records of Bohemian Waxwing in New England in past years, published works on Maine, New Hampshire and Vermont, birds have been consulted and representative observers and students now active in these States have been communicated with.

O. W. Knight, in his 'Birds of Maine' [1908], states: "It has been years since there has been any definite report of the occurrence of this species in Maine." He further states, however, for Kennebec County, "given in Hamlin's List, 1865"; for Penobscot County, "occasional specimens have been taken in winter, two or three at the outside, but none have been reported for years"; for Washington County, "rare, some winters occurs in large flocks (Boardman)." Knight, writing to Mr. Forbush under date of December 22, 1909, subsequent to the publication of his 'Birds of Maine,' states: "I have the very best evidence

possible that the Bohemian Waxwings were here last winter. You will find the bulk of our knowledge regarding their occurrence here in the 'Journal of the Maine Ornithological Society' for the current year. So it is needless for me to rewrite it. Additionally, I may say that I secured several photographs of the birds while feeding, and Mr. Winch secured two specimens, a fine adult male and a female, which are now in the University of Maine Museum."

The testimony which Mr. Knight refers to in the winter of 1908–09 is this:

Clarence H. Clark, Lubec. Bohemian Waxwings made their appearance December 6, 1908; remained to January 3. Reappeared February 6, 1909, weather raw and rainy. They "keep up an incessant metallic trill." Number stated as twenty. [March 1909, Journal.]

Ora W. Knight, Bangor. March 9, 1909, Dr. W. H. Simmons, of Bangor, saw "a good-sized flock feeding daily on the fruit of a mountain ash beside a window of his home. The birds had been coming for some time before he paid any especial attention to them." On March 11, Messrs. Knight and Minch visited the locality, "found the flock feeding on rotten crabapples in an orchard, sometimes eating the pulp itself, at other times picking the apple to pieces and eating the seeds. Viewed them within fifteen feet." Mr. Knight states: "It is well on to twenty years ago, when the writer was a high school boy just beginning his scientific career, that the Bohemian Waxwing last visited this locality." [June, 1909, Journal.]

Miss Bertha L. Brown, Bangor, states: "The flock of Bohemian Waxwings, which has been seen about the streets of Bangor since early in February, [the number given in letter of Miss Abbot is fifty], had not left us March 30, 1909. I had not seen them until that date, although I had made many efforts to do so. I discovered a good-sized flock among some apple trees. For a good half hour I watched the birds at close quarters." [June, 1909, Journal.]

And this flight of Bohemian Waxwings was also observed at Grand Manan, New Brunswick, by Allan L. Moses, who testifies: "December 22 [1908] I saw one of the rarest birds that come to

the island, the Bohemian Waxwing. Three specimens have been seen here this winter, and I have two of them in my collection. This is the second record of this bird being taken in the island. The first was taken by my father, John K. Moses. I don't know the exact date, but it was about fifteen years ago." [March, 1909, Journal.]

Miss Harriet Abbot, of Fryeburg, on March 6, 1909, observed a Bohemian Waxwing at Bryant Pond. Her letter is so interesting that I quote it entire. Miss Abbot writes me: "On this date it was a rare opportunity to spend the entire day in the company of the Bohemian Waxwing. He came to his usual place, apple tree, near the house in the village of Bryant Pond, Oxford County. At the time the usual number of birds, tree sparrows, hairy and downy woodpeckers, juncos, redpolls, chickadees, and blue jays were feeding on the piazza, trees, and suet nailed on posts. The smaller birds paid no attention to the Waxwing, and they would all feed at once on the floor of piazza. The jays surrounded him on the apple tree, but he did not stir from his limb till the jays, after much noise and disturbance, left the tree. Mrs. Chase, who had the rare visitor from the middle of February until the second week of April, told me the things I observed on the one day were the same as occurred during all the stay. The Waxwing came to piazza *every* fifteen minutes from 8 A. M. to 5 P. M., eating chiefly crumbs of various kinds, sometimes working on the peanuts and chicken food (a kind of coarse mixed grain), but always returning to the crumbs. Mrs. Chase could go near the bird when he was feeding. The song was a soft, sweet trill, not similar to the Cedar Waxwing. Shortly after the date of March 6, 1909, a friend of mine observed a flock of fifty Bohemian Waxwings in Bangor. The Oxford County date was the first record of the bird's appearance in this part of Maine." Referring to the 1919 migration in response to my inquiries, Miss Abbott further states, under date of April 5, 1919: "We have not had the bird in our part of Oxford County [Fryeburg], neither has it been reported from adjoining counties."

Mr. Edmund P. Brown, of Belfast, Maine, very kindly assisted me in procuring such other Maine records from reliable observers as were obtainable. Mr. Basil Newell, of City Point, informed

Mr. Brown that about March 1, 1909, he saw three Bohemian Waxwings in apple trees near the State House in Augusta and that identification was absolute. Miss Bertha Brown, of Bangor, communicated to Mr. Brown the following record: "The only other record that I have of them [Bohemian Waxwing] was January 8, 1916, when several reliable members of our Bird Club, my sister among them, saw two Bohemian Waxwings in a tree on one of Bangor's residence streets. They watched them for some time and made very sure of the identification. Then, also, I was so unfortunate as not to be on the scene. Indeed, the only time I ever saw the bird in life was in the winter of 1909, when a large flock was about Bangor for over two months, February and March. Then I had several opportunities to observe them well and carefully."

Mr. Arthur H. Norton, curator of the Portland Society of Natural History, writes me that he has but one record, that of a bird seen by him at Westbrook, Maine, April 3, 1914.

Other representative ornithologists of Maine have been communicated with, who have reported that they have had no records of Bohemian Waxwing in their life experience.

Dr. Glover M. Allen, in his 'List of the Birds of New Hampshire,' published in 1903, designates the Bohemian Waxwing as "an extremely rare winter visitant," and states: "There appears at present to be no valid published record for the occurrence of this species in the State, but Dr. W. H. Fox informs me that, in the early part of 1880, O. H. Phillips, a taxidermist, took specimens near Nashua"; and that "Mr. W. E. Cram writes me he has observed it at Hampton Falls on February 17 and 21, 1897."

Mr. Charles F. Scott, of the New Hampshire College, Durham, furnishes two records, kindly transmitted to me by Prof. C. F. Jackson, of the Department of Zoology. The records are: "May 10, 1909, three Bohemian Waxwings seen on the Newmarket road between Newmarket and Durham; these were in the town of Durham"; and "June 2, 1913, one seen on the Newmarket road at about the same spot where those of 1909 were seen." Prof. Jackson regards Mr. Scott as "a thoroughly reliable observer" who "can be depended on for correct classification."

Rev. Manley B. Townsend, of Nashua, secretary of the Audubon Society of New Hampshire, and Mr. Lewis Dexter, of Manchester, have faithfully sought information concerning any occurrences of Bohemian Waxwing in the season of 1919, or in previous years, in the State, but unavailingly. No records have been obtained. The late Mr. Fred B. Spaulding's records at Lancaster have been examined by Mr. Fred H. Kennard, in whose possession they now are, and no record of *B. garrula* was found. Mr. Scott's records of 1909 and 1913 at Durham, and Prof. Patten's records of January 16, 1919, and one in 1914 or 1915, at Hanover, are therefore the only records within our knowledge for New Hampshire, additional to those published by Dr. Allen.

In 'A Preliminary List of the Birds Found in Vermont,' by Dr. George W. Perkins assisted by Clifton D. Howe, M. S. [1901], under the caption *Ampelis garrulus*, Bohemian Waxwing, the statement is made: "Not usually seen; but sometimes, especially in early spring or late fall, flocks appear for a few days."

Several interesting Vermont records since the publication of this 'Preliminary List' have been communicated to me. Dr. Lucretius H. Ross, of Bennington, gives a series of records as follows: "1904, a flock numbering twelve to fifteen remained about Bennington village from March 3 to April 6. This flock was in the trees about the streets and was seen by many observers many times. The birds were not at all timid, and I observed them as close as twenty feet; 1908, on March 24, Mrs. Ross and I observed a flock numbering at least thirty. We saw them in an apple tree apparently eating the frozen fruit. Whether all of this flock were Bohemians I am not sure, but the larger number were. This same flock (I suppose) was seen on April 7 by Charles Hitchcock and identified as Bohemians (Hitchcock is a very reliable observer); 1911, March 27, Bohemian Waxwings ten, with Evening Grosbeaks five, in one flock, were studied by six observers for at least one hour. The birds were in low bushes (barberry) eating the berries; 1915, a flock of Waxwings numbering about fifty, composed of both the Bohemian and Cedar, remained during almost the month of April in a yard where there is a large tangle of barberry bushes. These birds were observed many times low down in the bushes and at close quarters; 1917, a flock of twelve

was observed on February 28." In a later communication under date of April 27, 1919, Dr. Ross states: "No Bohemian Waxwings have been identified in this vicinity this winter, although I have had several observers on the lookout. I have seen flocks of the Cedar Waxwing several times, but could not detect any Bohemians among them."

Miss Inez Addie Howe, botanist and instructor at the Fairbanks Museum of Natural Sciences, St. Johnsbury, writes: "In regard to Bohemian Waxwings I will say that on May 30, 1915, I saw a flock of seven in a cemetery at East St. Johnsbury. The next day, May 31, an observer at Lyndon, a town nine miles north of here, reported a flock of seven, presumably the same individuals." And in a subsequent letter Miss Howe states: "Of my own identification of Bohemian Waxwings on May 30, 1915, I am absolutely sure, and I gave full credence to Miss Walmarth's report on the day following, as she had the same number of individuals that I saw on the previous day. My record of May 30, 1915, was accepted by Prof. Wells W. Cooke, then of the U. S. Biological Survey, and it is on their files in Washington. I shall be glad to have you use my date in your paper and shall be willing to answer any questions or criticisms that it may occasion. I am sufficiently familiar with both species of Waxwings in our collections here, so that I feel sure of either wherever or whenever they may appear." In a letter of still later date, May 8, 1919, Miss Howe writes, "The one date of May 30, 1915, is my only one for Bohemian Waxwings in the twenty-five years that I have carefully observed the birds in this section."

I am also informed by Miss Howe that Mr. W. E. Balch, taxidermist of the Fairbanks Museum, and formerly of Lunenburg, testifies that he saw a flock of seven Bohemian Waxwings in an apple orchard in Lunenburg in February a few years ago. Mr. Balch's lamented illness throughout the winter and spring and recent decease prevent ascertaining what the year was.

Mr. George L. Kirk, of Rutland, writes: "Although I have been engaged in bird observations here for twenty years, I cannot positively say that I have seen a Bohemian Waxwing in Vermont. Some half dozen years ago, while on Mount Killington in mid-February with L. H. Ross, of this city, we saw a small group of

waxwings in the forest at about 3000 feet altitude. I should hardly expect Cedarbirds at such a place at that season, the weather being below zero and the snow deep, but unfortunately we had no glass and were unable to shoot one of the birds."

Mr. Charles F. Scott, of Durham, through Prof. C. F. Jackson, of the Zoology Department of the New Hampshire College, furnishes a record of a flock of about eighty Bohemian Waxwings seen on Killington Mountain below the summit, elevation about thirty-two hundred feet, on September 8, 1913. This seemed so extraordinary a record for its earliness that I wrote Mr. Scott to learn more particularly concerning this occurrence. Mr. Scott's interesting letter in reply would seem to leave no doubt as to the correctness of his identification. He writes: "It is true, as you have stated, that that species should not be found in our latitude in September. However, the bird is quite a wanderer and is often seen where least expected. In respect to the data I have in regard to the Killington Mountain record I would say that there could be no possible question of the identification, as I was able to get very close to the birds and observe all the marks of identification, including all those which you mention. I was very much surprised to find the species there at that time. I am, however, familiar with the bird in the north where also I have records, and from the experience I have had it would be impossible for me to confuse it with the Cedar Waxwing. * * * I observe not only all the identification marks, but also all habits, notes, and make especial note of the flight. * * * I certainly should not regard size alone as being enough to always distinguish the Bohemian from the Cedar Waxwing. You will also find a difference in flight and note. On the Killington Mountain trip the notes of several of the birds were heard. I had been told before by natives of the Green Mountains of the occurrence of the Bohemian Waxwing in the Green Mountains at that time of the year. It has also been reported in early October from the Mt. Mansfield–Camel's Hump region in the towns of Stowe and Duxburg. However, I cannot vouch for that. The best place to observe the habits of the Bohemian Waxwing is in Northern Quebec, north of Lake St. John. Another good region is in Northern Ontario along the line of the Canadian Government railways. In these two regions quite large flocks are seen in the Fall."

Mrs. Elizabeth B. Davenport, in an article on 'Birds of Windham and Bennington Counties' in 'Bulletin No. 2' of the Vermont Bird Club, July, 1907, includes Bohemian Waxwing, with the statement: "Reported from Bennington County. I identified one flock in Brattleboro, April, 1901." And in the joint 'Bulletins,' 4 and 5, of the Vermont Botanical and Bird Clubs, 1919, page 29, there is a record of a flock of Bohemian Waxwings numbering one hundred or more at "Sky Farm," Hartland, on October 30, 1917, observed by Miss Nancy Darling and her sister, Mrs. A. B. Morgan. Moreover, Miss Darling states that some years previously a flock of half a dozen or so visited the farm.

These Vermont records indicate that the Bohemian Waxwing reaches Vermont from time to time to a greater extent than it does New Hampshire, Maine, and Massachusetts, entering the State from the northwest on its long southeastward migration and sometimes scarcely penetrating New England further. The absence of Rhode Island records and the few records of Connecticut further indicate the southern bounds of the migration of the species into New England.

The records of 1919 and of recent years throughout northern and central New England, which have been presented, suggest that the Bohemian Waxwing, like the Evening Grosbeak, may have become a less unusual visitant than in former years, when our eminent ornithologists were active in the field, and very rarely, if at all in their life-long experience, was a specimen seen or taken by them. The range of date of occurrence extends, upon what seems to be reliable testimony, from surprisingly early dates, namely: September 8, Killington Mountain, Vermont, and October 30, Hartland, Vermont, to surprisingly late dates, namely: April 27, Malden, Mass.; May 29, Northport, Maine; May 30, St. Johnsbury, Vermont; and May 10 and June 2, Durham, New Hampshire; while the more usual season of occurrence is January to March inclusive, sometimes extending into April.

To summarize the records subsequent to 1900, given in this paper, the numbers in parentheses representing the respective number of individuals observed, and unless otherwise designated the time of occurrence being within the period of January to April inclusive, we have: *Grand Manan, N. B.* (3), Dec. 22, 1908.

Maine, Lubec (20), Dec. 6, 1908–Feb., 1909; Bangor (50), 1909; Augusta (3), 1909; Bryant Pond (1), 1909; Westbrook (1), 1914; Bangor (2), 1916; (5), 1919; Northport (1), May 20, 1919; Auburn (23, 7), 1919; Gorham (7, 5), 1919. *New Hampshire*, Durham (3), May 10, 1909; (1), June 2, 1913; Hanover (4), 1914 or 1915; (2), 1919. *Vermont*, Brattleboro (flock), 1901; Bennington (12–15), 1904; (nearly 30), 1908; (10), 1911; (some in a mixed flock of 50), 1915; (12), 1917; Hartland (5), late fall, 1908; (100), Oct. 30–31, 1917; Mount Killington (80), Sept. 8, 1913; (small flock), Feb., 1914 (?); Lunenburg (7), a few years ago; St. Johnsbury (7), May 30, 1915; no records for 1919. *Massachusetts*, all in 1919, Boston, Chestnut Hill district (1); Roslindale district (5); Newton Highlands (1); Malden (1); Essex (1); Greenfield (2); South Deerfield (2); West Stockbridge (8–10). *Rhode Island*, none. *Connecticut*, none.

The more notable incursions have been, therefore, in 1909, beginning in December, 1908, when reports from four localities in Maine and one from Grand Manan, N. B., include 77 individuals; and from one locality in New Hampshire, three individuals; and a second incursion in 1919, when reports from four localities in Maine include 36 individuals, from one locality in New Hampshire, two individuals, and from eight localities in Massachusetts, 21 individuals. In neither of these farther incursions into New England, strange to say, does a Vermont record appear. Yet in that State there are twelve records in nine or ten other years from six different localities, aggregating 300 individuals, more or less; while in these other years Maine furnishes but one record each in 1914 and 1916, New Hampshire but one record each in 1913 and 1914 (or 1915 ?), and Massachusetts, none at all. Vermont in the size of flocks observed far exceeds Maine, New Hampshire, and Massachusetts.

Bohemian Waxwings again appeared in New England in the late winter of 1920. Mr. E. P. Brown, of Belfast, Maine, reports that two male birds were seen by Mrs. Brown on January 26, with twenty Pine Grosbeaks, in a yard adjoining theirs. A neighbor reported having seen four or five Bohemians on the day preceding. February 1, eight individuals were seen by Mrs. Brown; three or four were in the full plumage of the male. This flock

continued to be observed from time to time up to February 29. On one occasion a pair was observed "billing," as do the Cedar Waxwings. Mr. Brown further states: "We noted that while Pine Grosbeaks or Evening Grosbeaks were usually present with them, they did not intermingle, the Bohemians keeping in a quite compact flock even when perching and feeding. Their whole diet while with us seemed to be the pulp, perhaps sometimes the seeds, of frozen apples. They seemed to show a preference for crabapples, and I am certain they commonly ate the pulp and showed no impatience to get at the seeds. They did not take alarm early, but had the habit, common with Cedarbirds, of simultaneous flight from no apparent cause."

Miss Bertha L. Brown, of Bangor, Maine, under date of March 3, 1920, writes: "A small flock of five or six Bohemian Waxwings are here in Bangor now; first seen on February 23, when they came to crabapple trees in a friend's yard. * * * I am sure there were five of them, and I think six. They did not mingle with the Pine and Evening Grosbeaks that were numerous in other parts of the tree, but kept aloof by themselves near the top of the tree. There, on March 1, they stayed for hours. The birds were displaying all their interesting and ingratiating mannerisms, frequently billing or caressing each other."

The Bohemian Waxwing again reached Massachusetts in the winter of 1919–20. One local record is at hand. Mrs. Edmund Bridge informed me that two or more Bohemians were present in West Medford from February 28 to March 3, with a flock of about forty Cedar Waxwings. Twelve Evening Grosbeaks, of which six were full plumaged males, and nine Pine Grosbeaks were near companions, a similar association of species as observed in Maine.

NOTES ON NORTH AMERICAN BIRDS.

X.

BY HARRY C. OBERHOLSER.

IN further continuation of the writer's comments on various North American birds,[1] the following data are offered. These concern four species, belonging to the families Colymbidae, Ardeidae, Megalornithidae, and Scolopacidae.

Colymbus holböllii (Reinhardt).

Holboell's Grebe has for a long time been considered a distinct species. It does not, however, need much study to show that it is but a geographic race of the European and west Asian *Colymbus grisegena* Boddaert,[2] with which it is identical in color, and from which it differs only in larger size, especially of the bill. Furthermore, this difference of size is only average, since the extremes of all measurements overlap.

The earliest name applied to Holboell's Grebe is *Podiceps rubricollis major* Temminck & Schlegel,[3] since the representatives of this species from eastern Asia are the same as those of North America; but so long as the bird remains in the genus *Colymbus* this name of Temminck and Schlegel's is preoccupied by *Colymbus major* Boddaert,[4] which is now *Aechmophorus major* (Boddaert). Now, however, since this grebe must be removed to the genus *Pedetaithya* Kaup, this name becomes tenable and has priority over *Podiceps holböllii* Reinhardt.[5] Holboell's Grebe should, therefore, now be known as *Pedetaithya grisegena major* (Temminck and Schlegel).

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[1] For previous papers in this series, *cf.* 'The Auk,' XXXIV, April, 1917, pp. 191–196; XXXIV, July, 1917, pp. 321–329; XXXIV, October, 1917, pp. 465–470; XXXV, January, 1918, pp. 62–65; XXXV, April, 1918, pp. 185–187; XXXV, October, 1918, pp. 463–467; XXXVI, January, 1919, pp. 81–85; XXXVI, July, 1919, pp. 406–408; XXXVI, October, 1919, pp. 556–559.

[2] Tabl. Planch. Enlum. d'Hist. Nat., 1783, p. 55.

[3] Fauna Japonica, 1842, p. 122, pl. 78B (Japan).

[4] Tabl. Planch. Enlum. d'Hist. Nat., 1783, p. 24.

[5] *Podiceps Holbollii* Reinhardt, Videnskab. Meddelelser Naturh. For. Kjobenhavn, 1853, Nos. 3–4 (1854), p. 76 (Nenortalik, Julianehaab Dist., Greenland).

Botaurus lentiginosus (Montagu).

The bittern known as *Botaurus lentiginosus*, although the North American representative of the European *Botaurus stellaris*, is a very different bird. It has, however, recently been considered by Dr. Ernst Hartert[1] a subspecies of the latter. It differs conspicuously from *Botaurus stellaris* in the possession of a broad black stripe down the side of the neck, which is represented in *Botaurus stellaris* by only a short rictal stripe of brown or blackish; in the much duller, more uniform upper surface, which is dark brown finely mottled with buffy and ochraceous, instead of, as in *Botaurus stellaris*, black with large, bold, strongly contrasted, bars and streaks of buffy and ochraceous; and particularly in the lack of tawny bars on the primaries, secondaries, and primary coverts, which parts are plain brown, or, at most, with tawny mottlings on the terminal portion. Examination of a series shows that all three of the above characters are constant in every individual and show no indication of the intergradation necessary to reduce *Botaurus lentiginosus* to subspecific rank. Occasional immature specimens of *Botaurus stellaris* have few or no tawny bars on the primaries and secondaries, but this, of course, unless it occurs in adult examples, can not be regarded as evidence of intergradation. There are other differences between *Botaurus lentiginosus* and *Botaurus stellaris*, such as the paler, much more brownish (less blackish) pileum, and the broader, more uniform character of the streaks on the anterior lower parts, but since these differences are not entirely constant they are not of particular interest in the present connection.

In view of the above facts, *Botaurus lentiginosus* is best regarded as a distinct species; and it should thus stand as it has stood in the writings of almost all authorities from the time of its description. Its name, therefore, should continue to be *Botaurus lentiginosus*.

Grus mexicana (Müller).

The Little Brown Crane (*Grus canadensis*)[2] differs from the Sandhill Crane (*Grus mexicana*)[3] only in smaller size, particularly

[1] Hand-List Brit. Birds, 1912, p. 126.

[2] *Ardea canadensis* Linnaeus, Syst. Nat., ed. 10, I, 1758, p. 141 (Hudson Bay, Canada).

[3] *Ardea mexicana* Müller, Natursyst. Suppl., 1776, p. 110 (Mexico).

of the bill. This difference has for a long time been supposed to be so trenchant that no intergradation between the two forms was indicated, and therefore they have been regarded as distinct species. In the course of many years the writer has examined and measured a large number of these birds, and the results obtained show that while typical specimens, and in fact the majority, are readily assignable to one form or the other, the measurements of wing, tail, tarsus, and even bill completely inosculate, and that, therefore, specific distinction cannot be maintained. This view agrees with that of the most recent monographer of the family Gruidae,[1] who considered *Grus mexicana* a subspecies of *Grus canadensis;* while more recently Mr. W. E. C. Todd has conclusively shown[2] that *Grus nesiotes* Bangs and Zappey[3] is but subspecifically distinguishable from *Grus mexicana.*

It may be worth while again to call attention to the undesirability of further continuing the use of the generic name *Grus* Pallas for the cranes, although perhaps sufficient publicity has been given to the matter by Allen,[4] Mathews,[5] and Hartert.[6] The generic name *Grus,* commonly used for the typical cranes, was first proposed by Pallas, in his 'Miscellanea Zoologica,' 1766, p. 66; but here the only species included is *Psophia crepitans.* This latter species becomes, therefore, by monotypy, the type of *Grus,* and *Grus* is, consequently, a synonym of *Psophia.* The only other available name for the cranes is *Megalornis* Gray,[7] the type of which is, by monotypy, *Ardea grus* Linnaeus.

In view of this and of the fact that the Whooping Crane, commonly called *Grus americana* (Linnaeus) belongs in a separate genus, *Limnogeranus* Sharpe, the American representatives of the genus *Grus,* or, as it should now be, *Megalornis,* will stand as follows:

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[1] Brasil, Genera Avium, No. XIX, 1913, p. 4.
[2] Annals Carnegie Mus., X, Nos. 1–2, January, 1916, pp. 205–208.
[3] Amer. Nat., XXXIX, No. 4, April, 1905, p. 193 (La Vega, Isle of Pines, Cuba).
[4] Bull. Amer. Mus. Nat. Hist., XXIII, 1907, p. 313.
[5] Novit. Zool., XVII, No. 3, December 15, 1910, p. 502.
[6] Hartert, Jourdain, Ticehurst, and Witherby, Hand-List British Birds, 1912, p. 210.
[7] List Genera and Subgenera of Birds, 1841, p. 85.

Megalornis canadensis canadensis (Linnaeus).
Megalornis canadensis mexicana (Müller).
Megalornis canadensis nesiotes (Bangs and Zappey).

Gallinago gallinago delicata (Ord).

Although *Gallinago delicata* has been commonly considered a distinct species, several authors have treated it as a race of the Old World *Gallinago gallinago*. Among the most recent of these is Dr. Hartert.[1]

The American bird differs from *Gallinago gallinago* chiefly in the possession of 16 instead of 14 rectrices; in having the under wing-coverts much less extensively white, and usually with heavy bars of dusky brown; the axillars regularly and broadly barred with dark brown instead of being almost pure white or only spotted with dusky; and in having the outer pair of rectrices narrower. A recent investigation of all these characters furnishes the following results: the number of tail-feathers in *Gallinago delicata*, although usually 16, is sometimes only 14, while in *Gallinago gallinago*, although usually 14, is not infrequently 16. The under wing-coverts in *Gallinago gallinago* are sometimes as strongly barred with dark brown as in the American bird, although apparently in the latter they never become as nearly pure white as in the European bird. The same remark will apply to the axillars in the two birds. The outer pair of rectrices, though usually broader in *Gallinago gallinago*, is sometimes fully as narrow as in specimens of *Gallinago delicata*. In all these characters *Gallinago delicata* seems to be more stable than *Gallinago gallinago*, lending interest to the suggestion that the latter is a more recent evolution from *Gallinago delicata*. There seems to be, however, from the above discussion no doubt of the propriety of considering *Gallinago delicata* a subspecies of *Gallinago gallinago*, since the latter was the first one described and since there is no single constant character separating the two. The American bird, therefore, should henceforth be known as *Gallinago gallinago delicata* (Ord).

[1] Hand-List British Birds, 1912, p. 190.

THE GEOGRAPHIC RACES OF CYANOCITTA CRISTATA.

BY HARRY C. OBERHOLSER.

As currently accepted the range of *Cyanocitta cristata florincola* is confined to Florida. Study of material in the United States National Museum, including the Biological Survey collection, recently acquired from the southeastern United States, has led, however, to the conclusion that the limits of the geographical distribution of this race must be very greatly extended. This extension includes South Carolina, the type locality of *Cyanocitta cristata cristata* (Linnaeus), and thus involves a readjustment of both forms of the species. These changes in distribution and nomenclature are explained in the following paragraphs:

Cyanocitta cristata cristata (Linnaeus).

Corvus cristatus LINNAEUS, Syst. Nat., ed. 10, I, 1758, p. 106 ("America septentrionali") (based on *Pica glandaria caerulea cristata* Catesby, Nat. Hist. Carolina, Fla., and Bahama Is., I, 1753, p. 15, pl. 15).

C[yanocitta]. c[ristata]. florincola COUES, Key North Amer. Birds, ed. 2, 1884, p. 421 ("Florida" [type from Hibernia, Clay Co., Florida]).

Cyanocitta cristata florincola AUCT.

Chars. Subsp.—Size small; blue of upper parts decidedly purplish; white tips of greater wing-coverts, tertials, secondaries, and rectrices, small.

Measurements.—Male:[1] wing, 119.5–135 (average, 126) mm.; tail, 114.5–126.5 (120); exposed culmen, 23–26 (24.5); tarsus, 32.5–35 (33.5); middle toe without claw, 18–23 (20).

Female:[2] wing, 117.5–127 (average, 122.5) mm.; tail, 108.5–117.5 (113.5); exposed culmen, 23–25.4 (24.5); tarsus, 32–34.5 (33.5); middle toe without claw, 17.5–19.5 (18.8).

Type locality.—Southeastern South Carolina.[3]

Geographic distribution.—Resident in the southeastern United States, north to central North Carolina, northwestern South Carolina, northern Alabama, southwestern Indiana, southern Illinois, southeastern Missouri, central Arkansas, northeastern and central Texas; west to southwestern Arkansas and central Texas; south to the coast of the Gulf of Mexico from southeastern Texas to the southern part of the Florida peninsula; east to the Atlantic coast from southern Florida to North Carolina.

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[1] Eleven specimens, from Florida.

[2] Nine specimens, from Florida.

[3] Here for the first time thus definitely designated.

Remarks.—The characteristics of this race are very constant in Florida birds, but become less so in those from farther north. There is apparently little, if any, migratory movement in this subspecies, so that its occurrence in any locality is fairly good evidence of its breeding there. Specimens from Christ Church Parish in southeastern South Carolina are in color like those from Florida, though barely darker and less purplish above, and with the white tips of the wing-feathers slightly larger. Birds from Kershaw County in the north central part of the same State are practically the same as those from Florida. Examples from southern Alabama, southern Mississippi, and southern Louisiana are similar to Florida birds, but are somewhat larger and have rather more extensive white markings on wings and tail. Breeding birds from Raleigh, North Carolina, and from extreme northern Alabama are intermediate between *Cyanocitta cristata cristata* and the form of the species inhabiting the northeastern part of the United States, but are nearer the former. A large series of Blue Jays from the lower Wabash valley in southwestern Indiana and southeastern Illinois shows conclusively that breeding birds of this region must be referred to *Cyanocitta cristata cristata.* They are, in general size, in width of the white wing-bars, and in the white tips of the wing-quills, very close to this race, although in the amount of white on the tips of the rectrices, as well as in the color of the upper parts they approach closely to the northern race. The following average measurements of specimens from southeastern Illinois and southwestern Indiana show how near the Florida race in size the birds from this region are:

Male:[1] wing, 130 mm.; tail, 127.5; exposed culmen, 25.2; tarsus, 34.5; middle toe without claw, 20.5.

Female:[2] wing, 125 mm.; tail, 119.5; exposed culmen, 23.5; tarsus, 34.5; middle toe without claw, 20.5.

In this connection it is of interest to note that Mr. Robert Ridgway, so he informs me, has recently come to the same conclusion regarding the subspecific identity of these southern Illinois and Indiana breeding birds.

The well-known Blue Jay was first given a technical designation by Linnaeus,[3] who based his name entirely on the figure and description given by Catesby.[4] Although Catesby gives no specific locality for the species, the well-known fact that Catesby's work was done largely in the vicinity of the Savannah River in southeastern South Carolina has led to the selection of "Carolina" as the type locality.[5] An examination of Catesby's figure and description leaves no doubt at all that both refer to the small purplish blue race with narrow white wing and tail edgings, which is found in the southeastern United States and which was sub-

[1] Nine specimens.

[2] Five specimens.

[3] *Corvus cristatus* Linnaeus, Syst. Nat., ed. 10, I, 1758, p. 106.

[4] Nat. Hist. Carolina, Fla., and Bahama Is., I, 1753, p. 15, pl. 15.

[5] American Ornithologists' Union Committee, Check-List North Amer. Birds, 1910, p. 222.

sequently named *Cyanocitta cristata florincola* by Dr. Elliott Coues.[1] This discovery necessitates, of course, the transference of the name *Cyanocitta cristata cristata* to the Florida bird and the relegation of *Cyanocitta cristata florincola* Coues to synonymy. Furthermore, it now seems worth while still more definitely to designate the type locality as southeastern South Carolina.

Since there are no other names to complicate the situation, the common Blue Jay of the northeastern United States needs a new designation.

The 215 specimens of this race examined in the present connection are from the following localities:

Alabama.—Barachias (March 8 and 9, 1913); Spring Hill (May 8 and 11, 1911); Mobile Bay (April 29, 1892); Perdido Bay (Sept. 13, 1911); Catherine (April 14, 1894); Autaugaville (Feb. 29, 1912; Sept. 17, 1911); Leighton (July 2, 1913; April 22, 23. and 24, 1914; March 30, 1912); Mobile (April 20, 1915); Guntersville (June 17, 1913); Choccolocco Mountain (June 10, 1913); Hayneville (July 22, 23, 24, 26, and 28, 1915); Sand Mountain (June 25 and 27, 1913; April 16, 1914); Huntsville (May 13, 1912); Teasley's Mill (May 13, 1914); Mussel Shoals (March 18, 1915); Elkmont (July 15, 1913); Auburn (March 4 and 6, 1912); Wilsonville (June 3 and 4, 1913).

Arkansas.—Delight (July 17, 1912).

Florida.—Braden River (June 11, 1918); Lake Worth (May 6, 1889); Micco (Jan. 25, 1895); Fort Bassinger (Feb. 7, 10, 17, 22, and 26, 1896; March 3 and 4, 1896); Fort Thompson (Feb. 28, 1898; March 3, 1898); Driggs Landing, Kissimmee River (March 2, 1895); Kissimmee (Jan. 26 and 30, 1901; Feb. 2, 1901); Lake Kissimmee (March 21, 1901); Fort Gardner, Kissimmee River (Feb. 28, 1901; March 9, 1901); Moses Creek (May 17, 1894); five miles west of Miami (March 1, 1895); two miles west of Miami (Nov. 24, 25, and 26, 1904; Dec. 15, 1904); Mullet Lake (Nov. 23, 1895); Fort Meade (June 29, 1879); Tallahassee (Jan. 24, 1903; Feb. 18, 1903); Welaka (Dec. 26 and 28, 1885); Lake Arbuckle, Polk County (March 7, 1895); Lake Hatch-ne-haw (Feb. 12, 1901); San Mateo (1892); Hibernia (Feb. —, 1870); Miami River (March 18, 1859); Bayport (Feb. 26, 1877); Pellicier's Creek (May 20, 1894); Milton (March 25, 1881); Orange Hammock (March 2 and 3, 1895); Enterprise (March 10, 1869); Lake Trafford (Feb. 1, 1898); Shell Hammock (Feb. 14, 1901).

Georgia.—Floyd's Island, Okefinokee Swamp (Jan. 4, 1917); Red Hill (June 1, 1916); Liberty County (1845).

Illinois.—Olney, Richland County (April 16, 18, 21, 22, 23, 27, and 29, 1914; April 11 and 12, 1917; May 6 and 8, 1914; May 2 and 12, 1917; Jan. 13, 1917; Jan. 12, 14, 15, 18, 19, 22 and 28, 1918; Dec. 15 and 17, 1917; Dec. 19, 1916); Sugar Creek Prairie, Richland County (June 2, 4, 5, and 6, 1890); Mount Carmel (April 29, 1869; April 17, 1878; Oct. 22, —); Wabash County (Oct. 4, 1879).

[1] Key North Amer. Birds, ed. 2, 1884, p. 421 (Florida).

Indiana.—Knox County (April 21, 1881; May 5, 1881); Wheatland (May 5, 1885; May 10, 1890; May 5, 1883).

Louisiana.—Belcher (Feb. 3, 4, and 5, 1908); Bayou Tunica (March 16, 1884); Iowa Station (April 18, 1899).

Mississippi.—Magee (July 12, 1912); Adams Station (Oct. 22, 1912); Duckhill (May 24, 1912); Bay St. Louis (April 28 and 29, 1892); Washington (May 20, 23, and 24, 1892).

North Carolina.—Raleigh (Oct. 28, 1891).

South Carolina.—Blacksburg (June 22, 1916; Easley (June 13, 1916; Christ Church Parish (May 11 and 16, 1911; April 28, 1911); Wayne's Place, Christ Church Parish (May 3, 5, and 10, 1911); Aiken (March 15, 1873); Kershaw County (Feb. 4, 1904; March 17, 1904; Jan. 22, 1904; Dec. 28 and 29, 1903).

Texas.—Dickinson Bayou, opposite Galveston (March 20, 22, and 24, 1892).

Cyanocitta cristata bromia, nom. nov.

Cyanocitta cristata cristata Auct. nec Linnaeus.

Chars. subsp.—Similar to *Cyanocitta cristata cristata*, but larger; upper surface decidedly more bluish (less purplish); white tips of greater coverts, tertials, secondaries, and rectrices, larger.

Description.—Type, adult male, Wooster, Wayne County, Ohio; October 18, 1892; Harry C. Oberholser, original number, 767. Crown and occipital crest blue, between flax flower blue and grayish blue violet (2),[1] the anterior part of crown with whitish flecks; nasal plumes light blue, with black tips and shafts; forehead, lores, and a rather narrow collar around the entire neck, black; behind this a cervical collar of blue like the crown, reaching around to the sides of the neck; back, scapulars, and sides of neck posterior to the blue collar, between dark plumbago blue and deep aniline lilac; rump and upper tail-coverts, light tyrian blue, verging toward squill blue, the longest upper tail-coverts duller and more greenish; tail blue, varying from brownish porcelain blue on the bases of the middle feathers and gobelin blue on the basal portions of the remaining rectrices, to dark orient blue distally, the inner margins of all but the middle pair basally dark mouse gray; middle tail-feathers regularly and numerously barred with black; the remaining rectrices also thus barred on their outer webs except basally, these bars gradually decreasing toward the outermost pair of rectrices, which are entirely without such markings; all but the middle pair of tail-feathers broadly tipped with white, these areas being 16 mm. long on the inner feathers to about 34 mm. on the outermost; wing-quills dark mouse gray, their inner margins somewhat lighter and more brownish, the tips of the primaries washed with

[1] The names of colors are from Mr. Ridgway's "Color Standards and Color Nomenclature."

deep orient blue, the outer edges of the primaries deep Alice blue, but their terminal portions only washed with this color; tertials and outer margins of the secondaries between indigo blue and Hortense blue; but the middle part of the outer webs of the tertials pale blue, and all but the outer webs of both tertials and secondaries broadly barred with black; primary coverts similar to the outer margins of the secondaries, but duller and darker, and also barred with black; greater coverts partly China blue, partly between indigo blue and Hortense blue, and barred with black; median and lesser coverts like the back; greater coverts broadly, the tertials and secondaries very widely, tipped with white; superciliary stripe, cheeks, auriculars, together with chin and throat anterior to the black collar, pale grayish white washed with purplish blue; breast and sides of breast, light drab, washed with pale purplish blue; sides and flanks. drab gray; the rest of the lower parts dull white; lining of wing fuscous black; axillars and edge of wing washed with dull blue; "iris dark brown; bill and feet black."

Measurements.—Type: total length (in flesh), 304 mm.; extent, 450; wing, 143; tail, 135; exposed culmen, 27; tarsus, 35.5; middle toe without claw, 21.5.

Male:[1] wing, 132.5–148 (average, 139.8) mm.; tail, 122–147.5 (133.5); exposed culmen, 23–30 (27); tarsus, 35.5–37 (36.3); middle toe without claw, 20.5–23.5 (21).

Female:[2] wing, 128.3–139 (average, 132) mm.; tail, 122.5–130 (127); exposed culmen, 23–26.5 (24.3); tarsus, 31.8–36 (33.8); middle toe without claw, 18.5–21 (19.5).

Type locality.—Wooster, Wayne County, Ohio.

Geographic distribution.—Northeastern United States and southern Canada. Breeds north to Newfoundland, the valley of the St. Lawrence River, northern Ontario, and northern Alberta; west to central Alberta, western North Dakota, western South Dakota, eastern Colorado, and northwestern Texas; south to central northern Texas, central Missouri, central Illinois, central Indiana, central eastern Tennessee, northwestern North Carolina, and Virginia; east to the Atlantic coast from Virginia to Newfoundland. Casual at Fort Churchill, Manitoba, and Fruitland, New Mexico. More or less migratory in the northern part of its range, and occurring in winter in southern Illinois.

Remarks.—As already explained, the common eastern Blue Jay proves to be nameless by reason of the transfer of its current subspecific name to the southern race of the species. Specimens from Maryland, the District of Columbia, and northern Virginia are in color like the northern form, and only in their slightly smaller size do they indicate vergence toward *Cyanocitta cristata cristata*, and they, therefore, are clearly refer-

[1] Ten specimens, from Ontario, Saskatchewan, Manitoba, North Dakota, Minnesota, New York, Pennsylvania, and Illinois.

[2] Seven specimens, from Minnesota, Massachusetts, New York, and Pennsylvania.

able to *Cyanocitta cristata bromia.* Examples from central northern and northwestern Texas, as well as from central Oklahoma, are, however, decidedly intermediate, but belong apparently to this northern subspecies. Although the breeding birds and a majority of the winter birds of a large series from Olney, Illinois, are *Cyanocitta cristata cristata,* there are six individuals which are so typical of *Cyanocitta cristata bromia* that they apparently indicate a southwestern movement of the latter during the winter season.

The 106 specimens of *Cyanocitta cristata bromia* examined came from the localities given below:

Manitoba.—Red River.

Nova Scotia.—Halifax.

Ontario.—Lorne Park, Peel County (March 5, 1888); Lake of Bays (July 19, 1911).

Saskatchewan.—St. Louis (Sept. 12, 1897).

District of Columbia.—Washington (May 5, 1893; Nov. 26, 1910; Oct. 5, 1891; Sept. 19, 1911); Anacostia River (April 30, 1893); Rock Creek (May 7, ——; May 5, 1875).

Illinois.—Cook County (Dec. 6, 1869); Olney[1] (Dec. 20, 1916; Jan. 14, 1918; Dec. 15 and 17, 1917; Oct. 14, 1913; Jan. 18, 1917).

Kansas.—Cairo (Aug. 4, 1892); Fort Leavenworth (June 3, 1859); Belle Plaine (July 26, 1892).

Maryland.—Laurel (Sept. 19, 26, and 27, 1889); May 30, 1882; May 6 and 13, 1889; May 12, 1888); Grantsville (June 26, 1899); Sandy Springs (Feb. 1, 1891); Tacoma Park (Oct. 18, 1889); Great Falls (Sept. 27, 1889); Garrett Park (June 25, 1893); Aikin (Dec. 14, 1893); Bittinger (June 28, 1899); Branchville (Jan. 19, 1893); Finzel (June 17, 1899); eastern bank of Susquehanna River (March 2, 1894).

Massachusetts.—West Newton (March 9, 1894); Lincoln (April 10, 1896); Amherst (May 12, 1886); Cambridge.

Minnesota.—Fort Snelling (Jan. 2, 1903; March 7, 1903; March 26, 1890; Nov. 11, 1890; Dec. 13, 1890).

New Mexico.—Fruitland (Oct. 17, 1908).

New York.—Syracuse (May 7, 1887); Highland Falls (Oct. 2 and 4, 1882; Sept. 29, 1896; May 17, 1883; Nov. 30, 1878); Catskill Mountains (Sept. 21, 1896).

North Carolina.—Roan Mountain (July 11, 1895).

North Dakota.—Fairmount (May 24, 1915); Oakdale (June 30, 1913; July 1, 1913); Tokio (July 2, 1915); Pembina (June 2, 1873).

Ohio.—Wooster (Oct. 7 and 18, 1892; Oct. 3 and 21, 1890; Nov. 26, 1891; Dec. 25, 1890; Jan. 22, 1891; March 25, 1892).

Oklahoma.—Mount Scott (April 28, 1904).

Pennsylvania.—Carlisle (April 30, 1844; May 2, 1844); Red Bank (June 16, 1894); Leasuresville (June 29, 1897).

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[1] Not breeding.

Rhode Island.—Lake Worden (Nov. 25, 1900; Dec. 11, 13, and 20, 1900).

Texas.—Lipscomb (June 22 and 24, 1903); Vernon (April 28, 1894); Henrietta (April 21, 1894).

Virginia.—Fairfax County (Nov. 25, 1880); Falls Church, Fairfax County (Nov. 27, 1890); McRaes (Oct. 24, 1890); Gainesville (May 17, 1887).

West Virginia.—Franklin (June 26, 1899); White Sulphur Springs (April 29, 1893).

Wisconsin.—Palmyra (June 23, 1890); Marquette (Oct. 25, 1908); Kenosha (Oct. 11, 1888); Delavan (Oct. 23, 1910).

THIRTY-EIGHTH STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.[1]

BY T. S. PALMER.

THE Thirty-eighth Stated Meeting of the American Ornithologists' Union[1] was held in Washington, D. C., November 8 to 11, 1920. The business sessions on the opening day were held at the Cosmos Club and the public sessions on the following days at the United States National Museum. The meeting was one of the most largely attended in recent years, and with the excursions on Friday and Saturday occupied the entire week.

Attendance.—The total attendance of Fellows, Members, Associates and visitors was nearly 150. The Fellows present numbered 25 and the Retired Fellows two. Among these were two of the nine surviving founders, Dr. A. K. Fisher and Dr. R. W. Shufeldt, and eleven members elected at the first meeting in

[1] This was the eleventh meeting held in Washington, D. C. Readers who have access to early volumes of 'The Auk' will be interested in comparing the report of the first Washington meeting in 1886, given in Vol. IV, pp. 56–61. The Union then had 252 members, of whom about 20 Active Members (now known as Fellows) and 13 Associates were present. Five additional Corresponding Members and 44 Associates were elected. Committees were appointed to draft a new Constitution and By-laws, and to take the necessary steps to incorporate the Union. The recent publication of the first 'Code and Check-List' had caused a deficit which it was necessary to meet. The economic relations of birds caused considerable discussion in connection with the presentation of extended reports of the Committees on Protection and on Geographical Distribution of North American Birds. The work originally undertaken by these Committees subsequently developed to such an extent that it resulted in the organization of the National Association of Audubon Societies and the U. S. Biological Survey.

1883: seven Fellows, Prof. W. B. Barrows, Ruthven Deane, Dr. Jonathan Dwight, Dr. George Bird Grinnell, Dr. T. S. Roberts, John H. Sage, and W. E. Saunders; two Retired Fellows, H. W. Henshaw and Dr. Leonhard Stejneger; one Member, Dr. F. H. Knowlton; and one Associate, Dr. W. H. Fox. Among others present were Dr. Frank M. Chapman and Dr. Witmer Stone, Fellows; Dr. Wm. C. Rives, a Member elected in 1885; and W. L. Baily, a Member, and Dr. Hugh M. Smith, an Associate, elected in 1886 at the first Washington meeting. Among those who came from a distance were Miss Louise P. Ford, of South Carolina; A. F. Ganier, of Tennessee; Mrs. M. M. Nice, of Oklahoma; Dr. T. S. Roberts, of Minnesota; and R. M. Anderson, Major Allan Brooks, W. E. Saunders, and P. A. Taverner, from Canada.

Business Meetings.—The first day was devoted to meetings of the Council which lasted from 10.30 A. M. to 4 P. M., and two evening meetings: one of the Fellows at 7.15 P. M., and the other of Fellows and Members at 8.15 P. M.

By order of the Council, Dr. W. K. Fisher (at his own request) was transferred to the list of Retired Fellows and C. J. Pennock was reinstated in the list of Members. The price of complete sets of 'The Auk' was fixed at $200 and the annual subscription to non-members was advanced to $4.00, but members and members-elect may continue to receive the journal at the regular price, $3.00 per year.

At the meeting of the Fellows one vacancy was filled by the election of Robert Cushman Murphy, of Brooklyn, N. Y., and two amendments to the By-laws were adopted. One of these amendments, in Art. II, Sec. 4, modified the duties of the Treasurer; and the other, in Art. VII, Sec. 1, provided for the election of a board of three trustees to have charge of all the funded property of the Union.

At the meeting of the Fellows and Members, called to order by the President, 23 Fellows and 15 Members were present. Following the roll call and the reading of the minutes of the previous meeting the report of the Secretary was presented, showing a total of about 1140 Members (for details see p. 105). The report of the Treasurer showed the finances of the Union in a more satis-

factory condition than ever before, with a substantial balance of $2,362.94 in receipts over current expenses, and a total surplus, including income from life memberships and invested funds of $16,343.71, of which $6,774.75 is contained in the Brewster Memorial Fund.

The election of officers resulted as follows: President, Witmer Stone; Vice-Presidents, George Bird Grinnell and Jonathan Dwight; Secretary, T. S. Palmer; Treasurer, W. L. McAtee; Members of the Council, Ruthven Deane, Joseph Grinnell, Frederic A. Lucas, H. C. Oberholser, W. H. Osgood, Charles W. Richmond, and T. S. Roberts.

On recommendation of the Council, two Honorary Fellows, 13 Corresponding Fellows and 306 Associates were duly elected (see p. 96). In the election of five Members the States of California, Connecticut, Iowa, Nebraska and Oregon were represented respectively by Loye Holmes Miller, A. A. Saunders, T. C. Stephens, Myron H. Swenk, and I. N. Gabrielson. Fellows, Honorary Fellows and Members are elected from other classes, but Corresponding Fellows and Associates are elected from candidates outside the Union, so that the actual increase in membership was 319, the largest on record.

The Committee on Biography and Bibliography, through its Chairman, Dr. Palmer, presented a brief verbal report showing progress in various lines of work undertaken since its inauguration in 1915.

A replica of the William Brewster Memorial Medal which will be awarded by the Union for the first time in the year 1921, was exhibited by Dr. Chapman, who explained the details of the design and the conditions of the award.

Resolutions were adopted expressing the thanks of the Union to the Secretary of the Smithsonian Institution, the Superintendent of the National Zoological Park, the Librarian of Congress and the Director of the Bureau of Engraving and Printing for various courtesies extended during the Thirty-eighth Meeting of the Union.

Public Meetings.—The meetings devoted to the presentation and discussion of scientific papers occupied three full days, November 9, 10 and 11, from 10.15 A. M. to 5 P. M., and on Wednes-

day until 6 P. M., with an hour or more intermission for luncheon. The program included 38 papers on a wide range of topics relating to North American birds and contributions to the ornithology of Argentina, Nicaragua, Peru, Europe and Madagascar.

Illustration of birds may fairly be said to have been the outstanding feature of the meeting. The nine papers illustrated by lantern slides and the five contributions of motion pictures furnished an opportunity of comparing the best recent work with camera and motion picture machine. Finley's pictures of bird life on the Texas coast shown by Pearson, McClintock's detailed studies of the Least Bittern, Lloyd's views of the Trumpeter Swan, and Murphy's pictures of Peruvian birds were revelations, while Roberts' careful studies of some of the common birds of Minnesota demonstrated that many important facts may be learned from birds near home. Through the cordial coöperation of the Library of Congress a special exhibition of drawings, paintings, photographs and prints of birds was arranged in the Division of Prints and remained in place through the month of November. It not only brought together the best work with brush and camera by a number of American artists, but was supplemented by a series of prints arranged to show the development of ornithological illustration from the earliest times to date. (See beyond p. 161.)

The Passenger Pigeon formed the topic of considerable discussion in connection with Bond's 'Later Flights of the Passenger Pigeon,' while Dr. Shufeldt illustrated with lantern slides the principal published figures of this species. Plumage, including feather arrangement and structure, also formed the subject of several interesting and important papers: A. A. Allen discussed the 'Eclipse Plumage of certain Water-fowl'; W. DeW. Miller the 'Pterylosis of the Avian Wing'; J. P. Chapin the 'Pterylosis of *Monias benchi*' and also the 'Primaries of the Juvenile Plumage of Woodpeckers'; and Dr. Dwight the 'Metallic Plumage of the Purple Grackle.' Chapman and Fuertes illustrated by a series of specimens the 'Postmortem Changes in the Colors of Birds' Feathers' and showed the importance of recording the actual color of feathers in living birds. The fugitive nature of the tints in the plumage of certain species seem to have been better appreciated by bird artists than bird observers. Faunal papers were

represented by Stone's 'Notes on Birds of Cape May, N. J.,' Ganier's 'Birds of Middle Tennessee,' A. H. Howell's 'Birds of South Florida,' Griscom's 'Little Known Birds from Nicaragua,' Murphy's 'Ornithology of the Peruvian Guano Islands,' and Dabbene's 'North American Shore Birds in Argentina.' 'Recent Returns from Trapping and Banding' were reported by S. P. Baldwin and 'Progress in Ornithology in 1920' introduced by Dr. Oberholser was discussed by a number of the members.

The experiment of presenting the more technical papers at a special session seems to have been successful and aroused considerable interest. As a whole more opportunity was given for discussion of the various papers than has been afforded at recent meetings.

Other Events.—On Tuesday evening the members met at dinner in the cafe of the Library of Congress and the early part of the evening was devoted to an examination of the exhibit of bird paintings and photographs. Later, through the courtesy of the Library authorities, the party was conducted through the Divisions of Manuscripts and Maps and shown through the book stacks and the reading room for the blind.

On Wednesday evening the annual dinner was held at the Hotel Ebbitt, when Dr. Fisher entertained the members with a series of lantern slides illustrating the field activities of members of the Biological Survey.

On Friday morning after adjournment of the regular meeting a trip was made to the National Zoological Park, where, under the guidance of Superintendent Hollister, a party of about thirty was conducted through the bird houses and entertained at luncheon. On Friday evening the Committee on Nomenclature and Classification of Birds held a meeting and arranged for expediting work on the new 'Check-List' which is to form a part of the proposed 'Systema Avium.'

On Saturday a party of about thirty members visited Plummer Island, in the Potomac River a few miles above Washington, as the guests of the Washington Biologists' Field Club.

Besides the exhibition of bird paintings and photographs several special exhibits were arranged for the occasion in the United States National Museum. One of these, showing Government

work on birds, included copies of Government ornithological publications issued during the past two years by the National Museum, Biological Survey and the National Park Service and the various lines of activity in economic work, geographic distribution, bird banding, bird migration and bird protection under the direction of the Biological Survey. Another comprised specimens of birds discovered or described 100 years ago, and still another, specimens of the birds which have been added to the list of North American birds since the publication of the 'Check-List' of 1910.

Results.—In addition to opportunities for personal conferences and discussion and for comparison of specimens and consultation of books and records, several important results were accomplished during the meeting. Among these were the increase in the price of 'The Auk' to non-members, plans for the preparation of a decennial index to 'The Auk' for the years 1911 to 1920, and for prosecution of the work on the new 'Check-List,' and the transfer of the business office of the Union from New York to Philadelphia, where in future the records in connection with the collection of dues and subscriptions to 'The Auk' will be kept under the personal direction of the editor.

The next meeting will be held in Philadelphia, Pa., November 8 to 10, 1921.

PROGRAM.

(Papers marked with an asterisk (*) were illustrated by lantern slides.)

TUESDAY.

1. Marriage Relations of the House Wren. S. PRENTISS BALDWIN, Cleveland, Ohio (20 min.).
2. In Memoriam—William Dutcher. T. S. PALMER, Washington, D. C. (30 min.).
3. Some Additional Notes on Birds of Cape May, N. J. WITMER STONE, Philadelphia, Pa. (20 min.)
4. The Later Flights of the Passenger Pigeon. FRANK BOND, Washington, D. C. (10 min.)
5. Notes on the Eclipse Plumage of Certain Waterfowl. ARTHUR A. ALLEN, Ithaca, N. Y. (15 min.)
6. * The Use of Homing Pigeons in the World War. ERNEST HAROLD BAYNES, Meriden, N. H. (30 min.)

7. * The Trained Fishing Cormorants of Japan.[1] H. M. SMITH, Washington, D. C. (20 min.)
8. * The Temperate Zone in South America. FRANK M. CHAPMAN, New York. (20 min.)
9. * Published Figures and Plates of the Extinct Passenger Pigeon. R. W. SHUFELDT, Washington, D. C. (25 min.)
10. * Some Recent Experiences with Kirtland's Warbler. WALTER B. BARROWS, East Lansing, Mich. (30 min.)

WEDNESDAY MORNING.

11. Recent Returns from Trapping and Banding. S. PRENTISS BALDWIN, Cleveland, Ohio. (20 min.)
12. Roosting Habits of Migratory and Winter Birds in Middle Tennessee. A. F. GANIER, Nashville, Tenn. (20 min.)
13. Progress in Ornithology in 1920. Introduced by HARRY C. OBERHOLSER. General Discussion by the Members. (60 min.)
14. * Birds of South Florida. ARTHUR H. HOWELL, Washington, D. C. (30 min.)

WEDNESDAY AFTERNOON—MOTION PICTURES.

15. Bird Life on the Audubon Reservation at Orange Lake, Florida. NORMAN MCCLINTOCK, Pittsburgh, Pa. (45 min.)
16. Trumpeter Swans. HOYES LLOYD, Ottawa, Canada. Presented by Allan Brooks. (10 min.)
17. Some Bird Studies in Motion Pictures. THOS. S. ROBERTS, Minneapolis, Minn. (25 min.)
18. Notes on the Summer Birds of Southeastern Texas. T. GILBERT PEARSON, New York. (45 min.)
19. The Ornithology of the Peruvian Guano Islands. ROBERT CUSHMAN MURPHY, Brooklyn, N. Y. (45 min.)

THURSDAY.

20. * The Pterylosis of *Monias benschi*. J. P. CHAPIN, New York. (20 min.)
21. * The Pterylosis of the Avian Wing. W. DEW. MILLER, New York. (30 min.)
22. Post Mortem Changes in the Colors of Birds' Feathers. F. M. CHAPMAN and L. A. FUERTES. (10 min.)
23. * Sexual Dimorphism in *Sula nebouxi*. ROBERT CUSHMAN MURPHY, Brooklyn, N. Y. (10 min.)
24. * The Primaries of the Juvenal Plumage of Woodpeckers. J. P. CHAPIN, New York. (10 min.)

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[1] A similar paper mentioned by Dr. Smith, 'On Cormorant Fishing in Japan,' was presented by P. L. Jouy at the Boston meeting of the Union in 1887 and published in the Am. Naturalist, XXII, pp. 1–3, Jan. 1888.

25. Notes on New or Little Known Birds from Nicaragua. W. DEW. MILLER and LUDLOW GRISCOM. (20 min.)
26. Some Notes on European Birds. HENRY OLDYS, Silver Spring, Md. (20 min.)
27. The Metallic Plumage of the Purple Grackle as correlated with Variation. JONATHAN DWIGHT, New York. (20 min.)
28. Nuptial Habits of the Sage Cock. FRANK BOND, Washington, D. C. (10 min.)
29. North American Shore Birds in Argentina. ROBERTO DABBENE, Buenos Aires. Presented by FRANK M. CHAPMAN. (15 min.)
30. Nesting of Mourning Doves at Norman, Okla. MRS. MARGARET MORSE NICE, Norman, Okla. (20 min.)
31. The Estimated Number of Long Island Shore Birds. J. T. NICHOLS, New York. (20 min.)
32. Breeding of the Evening Grosbeak in Northern Wisconsin. O. W. SMITH. Presented by FRANK M. CHAPMAN. (5 min.)
33. The History and Purposes of Bird Banding. F. C. LINCOLN, Washington, D. C. (Read by title.)
34. The Desirability of a Definite Method of indicating the Authorities for Scientific Names. FRANK M. CHAPMAN, New York. (Read by title.)
35. Present Condition of Waterfowl Breeding Grounds on the Great Plains. HARRY C. OBERHOLSER, Washington, D. C. (Read by title.)
36. The Pronunciation of the Scientific Names of Birds. FRANCIS H. ALLEN, Boston, Mass. (Read by title.)
37. Further Contributions to the Ornithology of New Brunswick. P. B. PHILIPP and B. S. BOWDISH. (Read by title.)
38. Some Interesting Records of South Carolinian Birds. ARTHUR T. WAYNE, Mt. Pleasant, S. C. (Read by title.)

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BY T. S. PALMER.

Membership.—The present membership of the Union is approximately 1140 with at least one representative in every State, in Alaska, Hawaii and the Philippines, in six Provinces of Canada and at least twenty foreign countries. In November, 1919, the total number of members was 1024. The distribution of the membership in each year is shown by the following statement:

Year	Fellows	Retired Fellows	Honorary Fellows	Corresponding Fellows	Members	Assoc.	Total
1920	49	3	19	75	86	910	1142
1919	48	3	19	63	84	807	1024

During the past year the Union lost 20 members by death, 16 by resignation and a number by delinquency. The net gain was 118, as compared with a gain of 71 during the previous year. The deaths (counting 6 which occurred in the previous year, news of which was delayed) included those of 1 Fellow, 1 Honorary Fellow, 2 Corresponding Fellows, 1 Member and 15 Associates.

An effort has been made to stabilize the membership by transferring ten per cent. of the members to a life basis. As a result of recent efforts on the part of several members the Union now has 45 life members, including 5 Fellows, 7 Members and 33 Associates.

* Life Associate.

Service.—In addition to answering a large number of inquiries and requests of various kinds, efforts have been made to render service to members and the public along several diverse lines:

(a) To members and public libraries in completing sets of 'The Auk.'

(b) To public libraries and individuals in furnishing full names and dates of birth and death of members (through the Committee on Biography).

(c) To arrange for an interchange of plastotypes of fossil birds of North America between some of the larger museums so that each institution ultimately will have a complete series of plastotypes of all species not represented by types in its own collection. The U. S. National Museum has already made casts of each of its types and is prepared to exchange as soon as other institutions have done likewise.

(d) To make a general survey of the principal bird collections of the world in order to secure for ready reference statistics regarding the number of specimens and also information concerning the character and special features of such collections.

Preliminary figures have been obtained from some of the larger public and private collections in the United States (those containing 5000 specimens or more) and data have also been secured regarding the principal collections of Argentina, Japan and Sweden.

Foreign Relations.—Last year the foreign members including Honorary and Corresponding Fellows numbered 75; at present the number is about 85. Several of the members in eastern Europe and at least two of those in Japan are out of reach.

During the year unusual opportunities have been afforded of meeting foreign ornithologists. At the last annual congress Mr. W. L. Sclater was present and as a result of his visit to America cooperative work on the 'Systema Avium' has been begun with prospects of overcoming many of the difficulties which previously seemed serious. During the spring Mr. F. E. Blaauw, of Gooilust, Holland, visited this country and made an extended trip through the southern and western States before returning home. Dr. T. G. Ahrens, of the Prussian Conservation Bureau, spent some time in Baltimore and Washington. During the summer Mr. W. B. Alexander, of Perth, Western Australia, a member of the

Council of the R. A. O. U., and later Dr. Karl Alwin Haagner, of Pretoria, Transvaal, visited New York, Philadelphia and Washington.

Notices of the annual meeting and copies of the Secretary's report have been sent to Corresponding Fellows and have brought in reply a number of interesting letters thus establishing closer relations with foreign workers.

Of a dozen or more Americans in foreign countries several are at present residing abroad, including Carriker in Colombia, Williams in Cuba, Mitchell in Ireland, Charles Miller in Ceylon, and Zimmer in British Papua. In addition to these, Field, Holt and Peters are now in Brazil, Wetmore in Argentina, Beebe in British Guiana, and Beck in Tahiti, while Bryan has recently returned from Juan Fernandez and Raven has crossed Africa from the Cape to Cairo.

DECEASED MEMBERS, 1919–1920.

WILLIAM DUTCHER,[1] Fellow, died in his 75th year, at Chevy Chase, Md., July 1, 1920.

DR. MAX FURBRINGER, Honorary Fellow, died in his 75th year at Heidelberg, Germany, March 6, 1920.

DR. JOHAN AXEL PALMÉN,[2] Corresponding Fellow, died in his 74th year at Helsingfors, Finland, April 7, 1919.

RODERICK ROSS MCFARLANE, Corresponding Fellow, died in his 87th year at Winnipeg, Man., April 14, 1920.

FRANK SLATER DAGGETT,[3] Member, aged 65, died at Redlands, Cal., April 5, 1920.

JOSEPH STOCKDALE BRIGGS, Associate, of Norristown, Pa., died in his 73rd year, 1918.

JOSEPH MOODY ACKERMAN, of Newburyport, Mass., died 1919.

MISS NANCY P. H. ROBBEN, of Lowell, Mass., died 1919.

THOMAS SILSBEE, of Boston, Mass., died April, 1919.

ARTHUR S. ELDRIDGE, of South Lincoln, Mass., died November 6, 1919.

ROYAL ELISHA ROBBINS, of Brookline, Mass., died in his 30th year, February 9, 1920.

ARTHUR FARQUHAR, of York, Pa., aged 16, died at Ithaca, N. Y., February 21, 1920.

JOHN HENRY FLANAGAN[4] died in his 52nd year at Providence, R. I., February 23, 1920.

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[1] For obituary notice, see Auk, XXXVII, p. 636.
[2] " " " see Auk, XXXVII, p. 511.
[3] " " " see Auk, XXXVII, p. 508.
[4] " " " see Auk, XXXVII, p. 639.

DR. CHARLES GORDON HEWITT,[5] aged 35, died at Ottawa, Canada, February 29, 1920.

ROBERT LENOX MAITLAND[6] died in his 66th year at New Rochelle, N. Y., March 11, 1920.

MISS CAROLINE GRAY SOULE, of Brookline, Mass., died April 27, 1920.

MISS FANNIE HUBERTA FOOTE, of Yonkers, N. Y., died 1920.

HORACE WINSLOW WRIGHT,[7] aged 72, died at Jefferson Highlands, N. H., June 3, 1920.

MISS EMILY HINDS THOMAS, of Bryn Mawr, Pa., died October 17, 1920.

NELSON RUSH WOOD died in his 63rd year at Washington, D. C., November 8, 1920.

GENERAL NOTES

The Horned Grebe (Colymbus auritus) at Hatley, Stanstead County, Quebec. Since my last list of the birds of Hatley was written, the above species has been added, making a total in all of 177 species. In Knight's 'Birds of Maine,' 1908, p. 21, we read of the Horned Grebe as occurring rarely in spring and fall in the interior, whilst in the Province of Quebec the same thing seems to occur, judging from the literature on the subject. At Hatley the bird can safely be described as a not common migrant, for I have never seen it on my little marsh, nor yet on Lake Massawippi, and Mr. Greer tells me that in his fifteen or twenty years' experience as a taxidermist no examples have been brought to him to mount until the present season, when two birds were obtained by different parties on Lake Massawippi. One of these was shot on November 1, and the other on November 7, both of which I saw in the mounted state when calling on Mr. Greer on November 20. Apparently this has been somewhat of a 'Grebe' year, for my little marsh has produced several examples of the Pied-billed Grebe (*Podilymbus podiceps*) a bird I had personally never seen there before.—H. MOUSLEY, *Hatley, Que.*

The Glaucous Gull (Larus hyperboreus) at Buffalo, N. Y.—On March 24, 1918, while walking along the southern shore of Lake Erie from the Lackawanna Steel Plant to the foot of Louisiana Street, my attention was arrested by the presence of a large, wholly-white gull. The bird was associated with four or five Herring Gulls near shore; it was noticeably larger than its companions, and appeared at a distance to be entirely white. The light was very good at the time, and I was able to

[5] For obituary notice see Auk, XXXVII, p. 511.
[6] " " " see Auk, XXXVII, p. 640.
[7] " " " see Auk, XXXVII, p. 509.

approach quite closely with my glass. The bird now seemed much larger than the attendant Herring Gulls; its plumage was almost uniformly pure white, and the bill was tipped with black. No notes were heard.

There is, I think, no other gull which could reasonably be confused with *Larus hyperboreus* in the white plumage—providing a few Herring Gulls are near at hand for purposes of comparison as to size. The Glaucous Gull remained near shore with its companions during the entire period of the observation, thus enabling one to watch it at very close range. Western New York records for the species are few in number; Eaton, however, classes it as an uncommon but regular winter visitant. It is possible, of course, that the bird does occur along Lake Erie and the Niagara River nearly every winter, but certainly its presence is very rarely reported by observers in the Buffalo area.—Thomas L. Bourne, *Hamburg, N. Y.*

Blue Goose (Chen caerulescens) in Massachusetts.—On October 30, 1920, at John's Pond, Mashpee, Mass, a female Blue Goose was taken by Mr. Edmund Wright, who has kindly permitted me to record the occurrence. Mr. Wright had the bird mounted by the M. Abbott Frazar Co. and they sexed the specimen.—Charles R. Lamb, *Cambridge, Mass.*

American Egret (Casmerodius egretta) in Maine.—Scarborough would seem to be a favorite locality for this straggler, as well as other extra limital species which have been recorded from time to time, and I am now enabled to add another record. While crossing the golf links of the Prout's Neck Country Club a beautiful pair flew slowly overhead and after circling over the water and cane of Bloody Pond, just across the highway they alighted. They remained a few days in the immediate vicinity when one of the pair was shot by a boy. Dr. William P. Coues secured the specimen in the flesh, preserved it and has it now in his possession. It proved by dissection to be a female.

A short time before the capture of this bird, Dr. Coues saw a pure white heron standing in the marsh a short distance from the highway between Scarborough and Oak Hill, which was, no doubt, one of this pair. Arthur H. Norton of the Portland Society of Natural History, has furnished me with the following published records of the capture of this species in Maine: 1853, August 22, Scarborough (1883, Smith. Rod and Gun, Vol. xx, p. 104); 1875, April—Scarborough (Brown. Rod and Gun, Vol. VI. p. 81); 1891, April 7.—Gt. Cranberry Island (1897, Knight. Bull. 3. Uni. of Me. p. 39); 1896, August 20, Richmond (1897. Knight. Bull. 3 Uni. of Me. p. 39); 1906. May 3, Millbridge (1906, Knight. Journal Me. Orn. Soc. Vol. VIII. p. 80); 1911, April 23, Scarborough (1912, Brock. Auk. Vol. xxix. pp. 236-7); 1919, July 27, Falmouth (Not hitherto recorded, specimen in the Portland Society of Natural History.) —Ruthven Deane, *Chicago, Ill.*

Some Old Shore Bird Records for the Chicago Area.—Many of the larger waders that the older writers list as once common in the Great Lakes region seem to have entirely disappeared, leaving few dates of actual captures behind them. The N. W. Harris Public School Extension of Field Museum recently obtained a small collection of beautifully prepared skins of waders taken by Mr. Charles Brandler in the once famous Calumet region, within the city limits of Chicago.

Following are a few of the more interesting of these records:

Numenius americanus americanus. Long-billed Curlew.—Three specimens, two males and one female, taken at Calumet Lake September 22, 1889.

Recurvirostra americana. Avoset.—Two males taken at 89 St. and Stoney Island Ave. on May 5, 1889.

Limosa haemastica. Hudsonian Godwit.—A male and female taken at Wolf Lake (Illinois side) on October 4, 1889. The female is in full summer plumage, the male about two-thirds changed. Another, a male, was taken at 89 St. and Stoney Island Ave. September 27, 1889.

Limosa fedoa. Marbled Godwit.—A fine male taken at Calumet Lake May 15, 1889. This is the only record I know of for the Chicago Area.—H. L. Stoddard, *The N. W. Harris Public School Extension of Field Museum, Chicago, Ill.*

Estimated Numbers of Shore Birds.—In studying the migration of shore-birds on Long Island, the writer has drawn up, for his own future reference, an estimate of the average number of each species which occurred there during the last half of a year for the ten-year period, 1911 to 1920. It will, perhaps, be interesting to others to place this estimate on record, and it is submitted herewith.

Sufficient data are not available to make these figures authoritative. They are based, however, on a fair knowledge of the topography of the whole island, and of the local habits (migration and otherwise) of the different species, and on rather continuous field observation during this period. Such species only as have been personally met with are included. Breeding birds and young successfully reared are included in the estimate, birds which may pass too high for observation, at night, or off-shore (doubtless many Northern Phalaropes), are not. The species are arranged below in order of their estimated abundance.

The figures for no two species have been arrived at in precisely the same manner. One of the methods followed was to multiply the observed average hourly number of individuals passing a point on the main line of flight by the supposed number of hours of active migration for that species and the product by the probable relationship of migration for the whole island to that along the main line of flight. Another method was from count on a favorable feeding ground (through the season) to estimate the entire number of individuals which had occurred on that ground and multiply by the probable relationship of the entire migration

to the part of it tributary to that particular ground. Estimates so obtained were arbitrarily revised to meet probable error due to some known habit of occurrence of a species. But, where actual figures of this sort were available, they were at least held to as a basis. Species, where satisfactory figures were not available, were estimated in relation to the figures for other comparable species.

Semipalmated Sandpiper (*Ereunetes pusillus*) 40,000.
Least Sandpiper (*Pisobia minutilla*) 12,000.
Ring-necked Plover (*Charadrius semipalmatus*) 6,500.
Lesser Yellowlegs (*Totanus flavipes*) 5,000.
Sanderling (*Crocethia alba*) 5,000.
Spotted Sandpiper (*Actitis macularia*) 3,200.
Pectoral Sandpiper (*Pisobia maculata*) 2,200.
Greater Yellowlegs (*Totanus melanoleucus*) 2,000.
Black-breasted Plover (*Squatarola squatarola*) 1,500.
White-rumped Sandpiper (*Pisobia fuscicollis*) 1,500.
Turnstone (*Arenaria interpres morinella*) 1,200.
Woodcock (*Philohela minor*) 1,000.
Wilson's Snipe (*Gallinago delicata*) 1,000.
Dowitcher (*Limnodromus griseus griseus*) 1,000.
Hudsonian Curlew (*Numenius hudsonicus*) 1,000.
Red-backed Sandpiper (*Pelidna alpina sakhalina*) 1,000.
Western Sandpiper (*Ereunetes mauri*) 1,000.
Killdeer Plover (*Oxyechus vociferus*) 400.
Solitary Sandpiper (*Tringa solitaria solitaria*) 350.
Piping Plover (*Aegialitis meloda*) 300.
Stilt Sandpiper (*Micropalama himantopus*) excepting 1912, 200 (1912, 3,000).
Northern Phalarope (*Lobipes lobatus*) 150.
Western Willet (*Catoptrophorus semipalmatus inornatus*) 100.
Knot (*Canutus canutus*) 100.
Golden Plover (*Pluvialis dominica dominica*) 100.
Long-billed Dowitcher (*Limnodromus griseus scolapaceus*) 50.
Hudsonian Godwit (*Limosa haemastica*) 10.
Wilson's Phalarope (*Steganopus tricolor*) 5.
Marbled Godwit (*Limosa fedoa*) 1.

A few words in explanation. Discussion with other members of the Linnæan Society of New York, indicates that above figures for the three most abundant species, Semipalmated and Least Sandpipers and Ringneck Plover, might be considered too low, even allowing for the fact that all figures are intentionally conservative. This is perhaps due to the large proportion of each species that passes through along a narrow "gutter" of migration, the beach side of the south shore bays, between limited dates as compared with the total period when the species is present. When this flight wave bunches up on a favorable feeding ground, in its path it

gives an observer a fictitious impression of a bird's actual abundance. On the other hand, the suggestion that the estimate for the Killdeer is too high is probably due to this species being scattered over the island rather evenly, at no time concentrated at those points where one looks for shore-birds. Figures for the Western Sandpiper are admittedly unsatisfactory due to the difficulty in always distinguishing it from the abundant Semipalmated Sandpiper.

As to changes during the ten-year period, unusually large numbers of the Greater Yellow-legs in 1919, unusually small numbers of that species and the Black-breasted Plover, and large numbers of the Hudsonian Curlew in 1920, are probably fortuitous as was one of the well-known periodic flights of the Stilt Sandpiper in 1912. The changes of perhaps greater significance which the writer believes to have occurred over the ten-year period are as follows: a marked decrease of the Semipalmated Sandpiper; a decided increase of the Pectoral Sandpiper and Wilson's Snipe; an appreciable increase of the Dowitcher, Stilt Sandpiper, and Golden Plover; a gradual increase and decrease again of the Western Willet and greater frequency of the Marbled Godwit in the closing years.

The question which naturally follows upon the above remarks is what relation the present numbers of shore-birds bear to those of the past. So far as data with which the writer is familiar are concerned numbers in the past are for the most part a matter of pure hypothesis; in fact the present estimate has been drawn up with the idea of having something a little more definite to go by in the future. To judge from hearsay and some shooting data about thirty years before the decade under discussion the two Yellow-legs, Black-breasted Plover and Hudsonian Curlew, are present in approximately the same numbers now as then, the Pectoral Sandpiper and Dowitcher have fallen off. Of course, we know that the Golden Plover has fallen off greatly from its one-time abundance, but the break probably occurred more than thirty years ago. The south-shore gutter along which the majority of migrants flow is still full of them, giving an impression of greater abundance than really exists, whereas formerly they very probably overflowed from it into considerable territory which is now unoccupied. The apparent recent increase in the Pectoral Sandpiper and Dowitcher, species which had been notably reduced even along their main migration route, and of the Golden Plover, is a hopeful sign as regards efficiency of recent legislation. One could not expect signs of increase even if such an increase exists in species where there has been little apparent falling off for many years.—J. T. Nichols, *American Museum Nat. Hist., New York City.*

Prairie Chicken (Tympanuchus americanus) in Arkansas.—On November 15, 1919, an adult female was shot by a farmer about eight miles west of this city. No others were observed. Undoubtedly it was a straggler. The species is extremely rare in the State. Have not had reports of its occurrence in the past eight years.—Albert Lano, *Fayetteville, Ark.*

American Osprey (Pandion haliaetus carolinensis) in Arkansas. A beautiful adult male was shot by a young farmer about two miles north of this city on September 20, 1919. The body was extremely fat but the stomach was empty. The species was formerly a common summer resident along the larger streams within the State, but has not been observed since September 19, 1892 (see Bull. No. 38, U. S. Biological Survey).—ALBERT LANO, *Fayetteville, Ark.*

Description of a New Species of Sittasomus from Northeastern Brazil.—Sittasomus cearensis sp. nov.—Type from Jua near Iguato, Ceara, N. E. Brazil. Male, No. 50592, Field Museum of Natural History. Collected by R. H. Becker, August 18, 1913.

Distinguishing Characters.—Male. Crown and nape grayish brown tinged with rufous; back more strongly tinged with rufous and shading to rusty rufous on the rump; exposed wings, and tail, chestnut rufous; underparts of body brownish buff with a slight tinge of rufous on the belly; crissum rufous; under wing-coverts pale yellow, slightly tinged with rufous. Wing, 70; tail, 69; exposed culmen, 11 mm.

This form is nearest to *S. erithacus* (Licht.) but can be distinguished at a glance by the buffy (not ochraceous) underparts, the differently colored crown and back and the lighter colored wings and tail.

The forms belonging to the Genus Sittasomus, so far known, with type localities are as follows:

Sittasomus erithacus (Light.), San Paulo, Brazil.
" *chapadensis* Ridgway, Chapada Matto Grosso.
" *amazonus* Lafr., "ad summum Amazonum."
" *cearensis* Cory, Jua near Iguato, Ceara Brazil.
" *sylvioides sylvioides* Lafr., Mexico.
" *sylvioides jaliscensis* Nelson, San Sabastian Jalisco, Mexico.
" *sylvioides levis* (Bangs), Bouquette Chiriqui Panama.
" *griseus griseus* Jardine, Tovago.
" *griseus phelpsi* Chapman, caripe Bumudez, Venezuela.
" *griseus virescens* Hellmayr and Leilern, Cumbre de Valencia, Venezuela.
" *aequatorialis* Ridgway, Guayaquil, Ecuador.

C. B. CORY, Field Museum, Nat. Hist., Chicago, Ill.

An Arkansas Kingbird (Tyrannus verticalis) at Ipswich, Massachusetts.—On September 19, 1920, the third day of strong northwest winds, I saw an Arkansas Kingbird at Ipswich. It had alighted on a telephone wire by the roadside about two miles from the sea. From here it made several sallies after insects and later flew to a small tree where I watched it within twenty feet. The black tail with white lateral edge, the yellow belly, the gray back and gray-white throat made its recognition certain and easy.

The previous instances of the occurrence of the Arkansas Kingbird in New England are as follows: one taken by Mr. George E. Brown at

Elliot, Maine, in October, 1865 (Bull. Nutt. Ornith. Club, Vol. 1, 1876, p. 73); one taken by Mr. Frederick A. Kennard at Monomoy Island, Chatham, Mass., on October 20, 1912 ('Auk,' Vol. 30, 1913, p. 112); one taken by Mr. L. C. Jones at Falmouth, Mass., on November 10, 1918, now in the mounted collection of the Boston Society of Natural History; one, long dead, picked up by Mr. D. L. Garrison on the snow at Marston's Mills, Cape Cod, on February 9, 1920 ('Maynard's Walks and Talks with Nature,' Vol. 12, 1920, p. 34).—CHARLES W. TOWNSEND, M.D., *98 Pinckney St., Boston, Mass.*

Arkansas Kingbird in Massachusetts.—On November 20, an Arkansas Kingbird (*Tyrannus verticalis*) was flushed upon the beach at Marblehead Neck, Mass., where it was feeding on insects that covered the seaweed. The writer was with several members of the Brookline Bird Club at the time. The bird, seemed very reluctant to leave the place where we found it, making a short flight, and upon being followed up returned to the beach each time.

So far as I know, this bird has only been recorded in Massachusetts five or six times.—CHARLES B. FLOYD, *Auburndale, Mass.*

Arkansas Kingbird in New Jersey.—On November 14, 1920, I found an Arkansas Kingbird (*Tyrannus verticalis*) near Princeton, in open fields on the Middlesex County side of the Millstone River, between Carnegie Lake and the Pennsylvania Railroad. After some chasing, I succeeded in studying it with the usual 8x glasses for a satisfactory period of several minutes as it sat but a few yards from me, on a low wire fence. The mid-day sun at my back, shining from a cloudless sky, showed me the visitor's colors and markings to a nicety—the light gray head with the dark area about the eye, the greenish hue of the back, and—when four times the bird flew down to pick something from the ground—the white lateral margins of the dark tail were as well noted as the color-pattern of wings and underparts. The day was the third of the first really cold snap of the season, with ice nearly a half-inch thick in places, and frost which, in the shade, remained unmelted all day.

The only other Princeton record of this western species is of one taken September 29, 1894, by Professor A. H. Phillips, and now No. 7 of his collection. There is apparently one other record for New Jersey—"near Moorestown" (Turnbull, 'Birds of E. Penna. and N. J.,' 1869).—CHARLES H. ROGERS, *Princeton Museum of Zoology, Princeton, N. J.*

Evening Grosbeak at Sault Ste Marie, Mich.—My first Evening Grosbeak for this winter, a male, arrived November 18, 1920. I have kept Sunflower seed out both winter and summer for several seasons. As this is the original type locality where the first specimen of the Evening Grosbeak was secured in April, 1823, the character of its occurrence here at the present time is of more than ordinary interest.

In the winter of 1917–18 I only had one visit, three males and one female, February 24, 1918; but every other winter since 1915–6 I have had a flock of from forty to sixty about the house all the time.

Heretofore the first arrival has been from October 15 to 23, and they stay until the end of May, the last to go leaving May 20 to 29. I had about made up my mind I would not get my flock this year, but this morning I heard one and on investigation soon located it. This is the usual procedure, first one arrives, a male, apparently to investigate, then leaves and in three or four days the flock arrives.

Just as I have the Evening Grosbeaks in winter, so I have a flock of some 30 to 75 Purple Finches in summer. They arrive March 22 to April 22 and depart October 21 to November 17. These two flocks together with my many casual visitors require 500 pounds of Sunflower seed a year.—M. J. Magee, *Sault Ste. Marie, Mich.*

The Grasshopper Sparrow in the Montreal District.—On the morning of June 26, 1920, while passing through a well-cultivated farming district in Chambly County, Prov. Que., about three miles from the Richelieu River, I heard from the roadway a bird's song that arrested my attention. Although it was new to me the weak insect-like buzz instantly suggested the Grasshopper Sparrow. I soon discovered the bird, perched on a fence post, where a good view was offered of its whitish unstreaked breast. Being very familiar with the Savannah Sparrow's song I was impressed at once with the similarity and the difference. The Savannah's song to me is "tsip-tsip-tsip-t-z-z-z-z-z—tser-r-r," while this bird sang "tsip-ip-tz-z-z-z-z-z-z-z-z." Outside of the introductory "tsips" the Savannah's song contains two main parts, whereas this bird, which proved to be the Grasshopper Sparrow (*Ammodramus savannarum australis*) had only one.

On my near approach the bird flew in an erratic, zig-zag manner, and dropped into the grass after a flight of over a hundred yards. I flushed it again with difficulty and finally lost sight of it in the border of some small tree growth where it had taken shelter. Returning at dusk I listened in vain for a repetition of the song, although Savannahs were singing abundantly as well as a few Vesper Sparrows.

Although, at the time, I was quite satisfied with the bird's identity, the days following brought a growing uncertainty and I returned to the locality on July 5. Arriving at the same place about 10.30 a. m. I soon located three singing males. All of these birds were singing from the ground and not from swaying plant stems as is the custom of the Savannah Sparrow, and it was only after considerable effort that I succeeded in flushing one of them, which I eventually secured. The flight in all instances was of a zig-zag nature and quite prolonged, and was easily distinguishable from that of the Savannah and Vesper Sparrows, which are the common sparrows in this particular locality. Returning toward dusk I again failed to hear the Grasshopper Sparrows singing, although as usual

the Savannahs were singing from fence posts in all directions. The immediate vicinity of the locality referred to is almost entirely under cultivation—fields of timothy and clover, oats and buckwheat prevailing, interspersed with pasture lands. Besides Savannah and Vesper Sparrows, Bobolinks were nesting commonly, as well as a few Meadowlarks. In my estimation the Grasshopper Sparrow is distinctive in habit and song but might easily be overlooked. Chapman speaks of pointing out this bird to a friend who was not familiar with it and who was very much surprised on going home to find it there also. In the hand, a cursory lateral view of the bird gives the impression of a diminutive female Bobolink.

Until quite recently there has been an apparent dearth of records for this sparrow from the Canadian border. In the North, at least, it is evidently more partial to inland than to coastal regions as Knight (1908) reports it as a rare bird in Maine; while New Brunswick and Nova Scotia appear to be without definite records, although Moore feels certain he has seen it at Scotch Lake (Macoun, Catalogue of Canadian Birds, 1909). In central New York it has been reported from several localities, and especially from Oneida County, where Bagg (Auk, 1897, 1900) found it rare during 1895 and common in the year 1900, during an apparent influx of austral birds. Records for Canada are confined to a few localities. McIlwraith (1892) reports it from Hamilton and London, Ont., and Macoun (1909) cites records of Fleming from Toronto—one specimen in the year 1879 and one in 1890.

Macoun also quotes Saunders, who finds it a fairly common bird in the vicinity of London, Ont., and more so to the southwest of London (Pelee district ?). This district is probably the most important station thus far discovered for the Grasshopper Sparrow in Canada. The appearance of several other austral birds in the vicinity of London and Point Pelee—notably Cardinal, Carolina Wren, Prairie Warbler, and Yellow-breasted Chat—suggests the theory that this is a favorable point of ingress. When we have a greater number of observers in Quebec it may be found that the Lake Champlain, Richelieu River Valley, is the principal highway for birds that are extending their range into Quebec Province. It is notable that I have unpublished reports of an Orchard Oriole seen at Lacolle, on the Richelieu, during two consecutive summers (1919, 1920). Further, at Chambly, also on the Richelieu, a Towhee was seen by several persons.

Other records for the Grasshopper Sparrow in Canada are: Ottawa, June 30, 1909 (Eifrig, Ottawa Naturalist, 1911); Ottawa, June, 1898 (Macoun, Ottawa Naturalist, 1898); Hull, Que., June, 1898 (*ibid.*). The Hull record is the only other for Quebec Province so far as I can learn.—L. McI. Terrill, *44 Stanley Ave., St. Lambert, P. Que.*

New Nesting Areas of Kirtland's Warbler.—On June 1, 1920, I located a colony of Kirtland's Warbler along the upper Muskegon river in Clare County, Michigan. Although no nests were found, at least a

dozen males were in full song and there can be little doubt that nesting had begun. This point is about forty miles from the original place of nest discovery in Oscoda County, and nearly as far from Grayling, Crawford County, near which place I found the bird nesting in 1918. The Clare County locality is on the western watershed of the lower peninsula, the Muskegon flowing into Lake Michigan. The altitude is approximately 600 feet above the Lake or about 1200 feet above sea-level.

Three weeks later, June 20, 21, 22, I found this warbler nesting in numbers in the Michigan National Forest, in Iosco County, about 20 miles southeast of the Oscoda County discovery and about forty miles northeast of the Clare County station noted above. Colonies were found at two different points within two or three miles of each other, and twenty-five or thirty pairs in all were located. After our return one of the forest rangers reported a third colony a few miles farther away. The single nest found contained one egg of the warbler and three eggs of the Cowbird, while a fourth Cowbird egg lay on the ground just outside the nest. Subsequently the warbler laid another egg and apparently removed one of the Cowbird's. Here the birds were found among young Jack pines on land which had been burned just five years before. The altitude is less than 100 feet above Lake Huron, or between 600 and 700 feet above sea-level, which upsets our previous belief that the nesting grounds were restricted to the higher Jack pine plains. This region is drained by the Tawas River which is not a tributary of the Au Sable but empties directly into Lake Huron.

So far as we now know Kirtland's Warbler is restricted in the nesting season to an equilateral triangle of about forty miles on a side, with its points in Crawford, Iosco and Clare Counties. A more extended notice may be looked for in a later number of 'The Auk.'—Walter B. Barrows, *East Lansing, Mich.*

Female Bay-breasted Warbler in Male Plumage.—An adult female Bay-breasted Warbler (*Dendroica castanea*) was taken at South Chicago, Ill., on May 21, 1915, that is of more than ordinary interest. The cheek patches and forehead are gray instead of black, otherwise the specimen is in the plumage of the adult male. The ovaries and undeveloped eggs were prominent and showed no sign of disease. The bird was also under-sized as the following measurements show: length (skin), 4.40 in.; wing, 2.60 in.; tail, 2 in. The small size was evident in life which led to the capture and careful examination of the specimen.—H. L. Stoddard, *The N. W. Harris Public School Extension of Field Museum, Chicago, Ill.*

Bewick's Wren and the Cape May Warbler in Kansas.—Thryomanes bewicki bewicki. Bewick's Wren.—This species has not, so far as I am aware, been included in any of the lists of Kansas birds outside of Goss's 'History of the Birds of Kansas,' 1891. Snow's 'Catalogue of

the Birds of Kansas,' fifth edition, 1903, does not mention this bird, nor do the more recent lists of Bunker, 1913, and Douthitt, 1919. It may be of interest, therefore, to note that on April 10, 1920, I shot a specimen of Bewick's Wren, about two miles due south of Lawrence. The bird was actively flitting about in some thorn bushes bordering a main road, a short distance from the Wakarusa river. The identification was verified by the Bureau of Biological Survey, Washington.

Goss classifies this species as a very rare summer resident arriving about April 1, saying that it begins laying in May and leaves about the first of October. To which particular part of Kansas his remarks pertain is not stated, but it is probably the southeastern portion. Harris, in his 'Birds of the Kansas City Region,' 1919, states that the northward extension of the range of Bewick's Wren "has probably already reached the extreme south and east borders of the county, as it has been regularly seen in the adjoining county (Johnson) since 1907." The reference is to Jackson and Johnson Counties, Missouri.

Dendroica tigrina. CAPE MAY WARBLER.—This species is not mentioned in any of the Kansas lists but a record for May 11, 1912, is given by Harris in his above-mentioned work as being obtained "over the state line in Johnson County, Kansas." On May 17, 1920, I observed a Cape May Warbler in the company of four Black-polls, in the outskirts of Lawrence. These birds were in some tall, neglected thorn hedges between a pasture and a cultivated field. A few days later Mr. Jean Linsdale, a careful and accurate observer, reported to me that he had seen a Cape May Warbler on the 15th of the month, about three or four miles northwest of Lawrence.—CHARLES E. JOHNSON, *Department of Zoology, University of Kansas, Lawrence, Kan.*

Sociable Water Ouzels.—In the late afternoon of July 2, 1916, at Fort Bidwell, Modoc County, California, I was standing on a bridge over a small stream flowing southerly from Bidwell Peak into Upper Lake, in the little village built up about this old military reservation. Upper Lake, which is alkaline, lies close against the timbered Warner Mountains on the west that form part of the divide between Sacramento River and the great arid interior basin. The stream is partly diverted for local irrigation purposes about the village, and many small deciduous trees flourish along its banks and tributary ditches. Just above the bridge, the stream makes a right-angled turn and inside this angle stands the village bank, built of brick, having a wooden lean-to or shed in the rear, projecting slightly over the water, here flowing rapidly under overhanging trees.

Looking downstream from the bridge, a Water Ouzel (*Cinclus mexicanus unicolor*) was noticed standing on a stone in midstream, facing first one way then another, bowing and dipping and evidently in search of food, for suddenly it ran into and under the water, brought out something in its bill and flew upstream, made the sharp turn and disappeared back of

the bank building. The bird repeated this performance until it was too dark to see her. In the meantime, the expectation of hearing the male's famous mountain song was not realized. Early the next morning, I posted myself on the bank at the sharp turn in the stream, where a view was had down under the bridge and up back of the lean-to. Soon the bird, which was presumed to be the female, as no song was heard, flew upstream as before, under the bridge, made the sharp turn so near me that her white nictitating membrane was plainly visible, and alighted on a stone directly back of the bank building. After a few seconds, she flew up under the eaves of the lean-to, whereat many cries could be heard from her hungry family, the bird returning downstream for additional supplies. As close inspection as possible revealed the bird's somewhat bulky nest placed on a horizontal timber near where it joined a rafter and close against the end of the shed. The nest was placed directly over and some eight feet above the water, a site frequently chosen by Phoebes. The light was very poor, so that the material of which the nest was composed could not easily be determined in the time at my disposal. At all times the bird appeared totally oblivious to my presence and to her urban surroundings, and was as much at home in the heart of the village as in her customary haunts along remote mountain torrents.

The object of this note is not alone to call attention to the occurrence of the Water Ouzels living under such civilized conditions, but also to place on record this radical departure from their ordinary nesting habits. There is perhaps a discoverable explanation for this departure. As far as my observations go, the Water Ouzel is a remarkably solitary bird, each pair exacting a widely spaced nesting area in which they reign supreme; and nesting conditions such as the bird usually selects, while confined to mountain water courses and their immediate vicinity, occur in great abundance throughout their chosen range. The theory that pressure on the food supply forced the birds to an uncongenial environment at this season of the year can scarcely be seriously advanced. It may well be, however, that an unusually severe season in the neighboring mountains froze up and rendered inaccessible their customary winter feeding ground, and that they moved downstream to the first open rapids, affording the necessary food supplies, which happened to be in the village, with the result that they nested here as well.

I did not have the good fortune to see or to hear the male, and his whereabouts were unknown to me, but business men nearby told me that he sang daily in the vicinity of the bridge.—CHARLES L. WHITTLE, *50 Congress St., Boston, Mass.*

Hudsonian Chickadee (Penthestes hudsonicus) at East Lansing, Mich.—Two Hudsonian Chickadees, always in company, spent a large part of the winter of 1919–1920 on the Agricultural College campus at East Lansing, Michigan. I first heard and saw them on December 16, 1919, but owing to a driving snowstorm was not sure of the identification.

On January 5, 1920, both birds were feeding about my feet in a little thicket of Japanese quince and allowed me to study them carefully at a distance of three or four feet. To the best of my knowledge and belief they were typical *hudsonicus*.

After that the pair was seen almost daily through January and February, the last positive record being on March 14, 1920. Their husky, wheezy notes, of course, were quite distinctive, but occasionally their "chick-a-dee-dee" seemed identical with that of the common Black-cap. They did not seem to care for the society of the common Chickadee, although once or twice they formed part of a mixed company of Woodpeckers, Chickadees, Brown Creepers and Nuthatches which visited my house several times daily. However, they were never seen at my feeding station where the suet and cracked nuts brought the other birds.

This appears to be the first positive record of this species in the Lower Peninsula of Michigan.—Walter B. Barrows, *East Lansing, Michigan.*

Blue-Gray Gnatcatcher in Massachusetts.—In the July issue of 'The Auk,' the late Mr. Horace W. Wright of Boston recorded finding a Blue-gray Gnatcatcher on Boston Common on May 18. I can report having found one three days earlier, i. e., the 15th, in West Roxbury, in company with a flock of warblers consisting of Parula, Myrtle, Magnolia and Black and White, in a rather thick growth of hemlocks. This bird fed in the tops of the hemlocks with the warblers and I watched it while in the company of several members of the Brookline Bird Club, for some time. When last seen, it was moving along with the warblers.

The fact that the bird was found in Massachusetts in the Spring is especially worthy of record, as it is found more or less frequently in the Fall.—Charles B. Floyd, *Auburndale, Mass.*

Unusual Visitors at Elizabeth, N. J.—The following records may be worth noting:

Aix sponsa. Wood Duck.—A rare bird in this vicinity for many years, until 1916. Now a regular summer resident and a prolific breeder. Earliest appearance of young broods on the water during past three years: 1918, May 12, seven young; 1919, May 11, seven young; 1920, May 23, twelve young. Judging from size and actions the last had been on the water several days. All the pairs nesting near here are not equally early breeders.

Chen hyperborea hyperborea. Lesser Snow Goose.—One bird out of three taken on salt meadows October 29, 1917. Wing measured 14.75 inches.

Olor columbianus. Whistling Swan. An immature bird taken alive, exhausted, October 29, 1916.

Casmerodius egretta. American Egret.—A flock seen on the salt meadows August 4, 1917. Previous local record about ten years earlier when a large flock spent all of August and part of September.

Florida coerulea. LITTLE BLUE HERON.—Three immature white birds were found in a small fresh water swamp on August 29, 1920, where they remained until September 12 or a few days later. The greenish yellow legs gave the deciding evidence of their identity. No dark tips could be seen on the primaries of two of the birds, either when wings were closed or extended, and I had opportunity to observe them feeding and preening at close range with glass. In the third bird the dark tips were only faintly discernible when the bird was flying overhead with sunlight coming through the wings. The outer half of the bill in all was much darker than the basal half, and in two the outer half appeared almost jet black. They were relatively tame—tamer than the Black-crowned Night Herons, the Little Greens and the Great Blues with which they associated—and when disturbed they did not leave the swamp (which was relatively small) as did the other species.

Tringa solitaria solitaria. SOLITARY SANDPIPER.—A partial albino was seen August 29, 1920. The white was on the outer half of the wings and was fairly evenly balanced. In flight the bird made a striking picture.

Cryptoglaux acadica. SAW-WHET OWL.—One seen February 16, 1919, and another (or possibly the same individual) in the same spot March 21, 1920.

Corvus corax principalis. NORTHERN RAVEN.—Two birds seen on an "island" in the salt meadows May 31, 1919.

Hesperiphona vespertina vespertina. EVENING GROSBEAK.—Fourteen seen December 31, 1916, and the same number in about the same locality February 23, 1920.

Acanthis linaria linaria. REDPOLL.—Abundant here from December 10, 1916, to March 11, 1917, and again from December 1, 1919, to March 21, 1920.

Spinus pinus. PINE SISKIN.—A dozen seen December 31, 1916. One seen January 25, 1920, and another May 9, 1920.

Mimus polyglottos polyglottos. MOCKINGBIRD.—One bird seen and heard May 11, 1919.—CHARLES A. URNER, *Elizabeth, N. J.*

Notes on Five Birds Taken Near Charleston, South Carolina.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER.—I wish to place on record the capture, by myself, of a third specimen of this rare autumnal migrant on September 16, 1920. This specimen was shot from a clump of viburnum bushes in low, swampy land, and is a young female. For previous records of the capture of this bird by the writer see 'The Auk,' XXX, 1913, pp. 273–274, and XXXVII, 1920, p. 92.

Empidonax minimus. LEAST FLYCATCHER.—On September 8, 1920, I shot a young male of this bird from a viburnum bush within less than a mile of my house. Upon picking the specimens from the jungle I was struck immediately with its small size and horn-colored lower bill and was satisfied that I had at last taken a bird of this species that I had

never before seen alive, and hastened home to consult Mr. Ridgway's 'Birds of North and Middle America.' My specimen did not fit Mr. Ridgway's description in regard to the emargination of the tail, but agreed in other respects. In order to place the identification beyond question I sent the specimen to Mr. Outram Bangs and asked him to make a careful comparison, as the bird in question, if really a Least Flycatcher, was new to the fauna of South Carolina, there being no valid record of its occurrence. Mr. Bangs wrote me under date of September 21, 1920, as follows: "I have carefully compared the flycatcher you sent and should without any doubt call it *Empidonax minimus*. The only thing I could see that was not quite right was the tail, which seems to be not so much emarginate or slightly forked as it should; but perhaps being a young bird just moulted into autumn plumage the tail may not be fully developed."

Long years ago I sent a somewhat similar "suspect" to Mr. William Brewster for identification, hoping it would prove to be a Least Flycatcher. But Mr. Brewster wrote me that the specimen was somewhat too large and the tail not sufficiently emarginate for *E. minimus* and that he considered it an example of *E. trailli alnorum*. I believe I sent this bird to Dr. Leonard C. Sanford and it must be now in the American Museum of Natural History. The actual capture of the Least Flycatcher is an addition to the fauna of South Carolina.

Vermivora pinus. Blue-winged Warbler.—In 'The Auk' for July, 1920, p. 462, I recorded seeing a bird of this species which I was unable to secure. I made no mistake in my identification of this bird despite the fact that it was the first one I had ever seen alive. I now wish to record the taking by myself of three specimens that I shot near Mount Pleasant. On September 4, 1920, I shot a young male, after a long chase, from the top of a live oak tree fifty feet above the ground, and on September 11, I obtained a young male and a young female, both shot from live oak trees. The female, which has the wing bars yellow as in *Vermivora chrysoptera*, was taken within a quarter of a mile of my house. These three birds are the only examples taken in South Carolina since Mr. Leverett Mills Loomis secured one at Chester on April 30, 1887 (Auk, VIII, 1891, p. 169).

I had not overlooked this species during the past 37 years that I have devoted exclusively to ornithology; and my belief is that since the wholesale destruction of the primeval forests along the coast, within the past fifteen years, this area has become covered with a second growth of bushes and small trees and the Blue-winged Warbler has found here a region to its liking during the migrations.

Dendroica discolor. Prairie Warbler.—On October 1, 1920, while I was within a quarter of a mile of my home, I saw a lovely yellow warbler fly across a road and alight in a small patch of rice. Never before in all my life had I seen such a strange as well as beautiful bird, and wondered

what species it could be. As the bird was extremely restless it was difficult to get a fair shot at it and as I did not want to lose so rare a prize I took a chance shot and luckily secured it in perfect condition. Upon lifting it tenderly from the ground I was momentarily puzzled as to the species I had secured, but as I examined the bill, wings and tail, I found that I had taken a unique, partly albino Prairie Warbler (*Dendroica discolor*). This exquisite bird is an adult female and is colored as follows: head, nape, neck, and most of the back canary yellow; throat of the same color becoming paler on the breast and abdomen. There are a few reddish brown feathers on the right side of the back and the wings and tail have many pure white feathers showing. These pure white feathers, however, do not correspond, as is usual in most birds that show albinism, and differ in position on either side. The bill, legs and feet are pure white, and the streaks on the sides of the body faint or nearly obsolete.

Hylocichla ustulata ustulata. Russet-backed Thrush.—In 'The Auk' for July, 1920, pp. 465–466, I recorded two specimens of this bird taken by me near Charleston on October 22, 1901, and May 3, 1902, and expressed my belief that I had not shot six Olive-backed Thrushes since 1883. Since the above was sent for publication I carefully looked through all my bird registers which go back systematically to 1884, and find that I have taken three so-called Olive-backed Thrushes up to 1920, a typical specimen having been secured on May 5 of that year. One bird taken October 18, 1901, was missing and I tried to ascertain the person to whom I had sent it. I finally located it, in the collection of Mr. John Lewis Childs, who kindly loaned it to me. This bird taken here on October 18, 1901, is a male and was labeled by me *Turdus ustulatus swainsonii*. It is, however, an undoubted example of the Russet-backed Thrush as I had suspected when I wrote to Mr. Childs. I wish to state that shortly after I had sent the MS. to Dr. Stone for publication on the two Russet-backed Thrushes, Dr. Chapman very kindly sent to me two birds of that species, one from Sinaloa, Mexico, taken in September by J. H. Batty, and the other from San Diego, California, taken in May by F. X. Holzner. The South Carolina birds were again carefully compared and matched the birds sent by Dr. Chapman feather for feather. Arthur T. Wayne, *Mt. Pleasant, South Carolina.*

Two Rare Birds in the Chicago Area.—On September 7, while walking along the beach of Lake Michigan, I noticed a Hudsonian Curlew (*Numenius hudsonicus*) on the little stretch of sand immediately in front of the Liberty Building in Jackson Park. The bird was very tame and excited a great deal of interest among the people who were watching it. It remained in this rather exposed place all afternoon.

On September 26, I noticed several large gray sparrows in company with a large flock of White-throats (*Zonotrichia albicollis*). Upon closer examination they proved to be Harris' Sparrows (*Zonotrichia querula*). Two individuals were positively identified as this species and several

others seemed larger and grayer than the White-throats. This is a rare bird in our area.—NATHAN F. LEOPOLD, *4754 Greenwood Ave., Chicago, Ill.*

Rare Birds in the Indiana Sand Dunes.—Picoides arcticus. ARCTIC THREE-TOED WOODPECKER.—A fine male of this species was taken one mile west of the Dune Park station in Porter County, Indiana, October 3, 1920. Another, also a male, was taken a mile and a half east of Dune Park on October 24, 1920. These specimens constitute the second and third Indiana records and were taken within four miles of where the first specimen was taken March 11, 1917 ('Auk,' Oct. 1917, pp. 487). The specimen taken October 24 appeared rather shy and wild, flying nervously from tree to tree uttering a loud and rather startling note, a rapidly repeated 'teck-teck-teck.' The other was extremely tame, industriously digging grubs out of a small dead scrub pine from which he had the bark almost stripped. It seems remarkable that these northern birds should appear so far south before cold weather had set in.

Zonotrichia querula. HARRIS'S SPARROW.—An immature female of this species was taken at Millers, Lake County, Indiana, on October 3, 1920.

Spizella pallida. CLAY-COLORED SPARROW.—A female was taken at Dune Park, Porter County, Indiana, on May 25, 1919. These records are the second for Indiana in each case to the best of my knowledge. Careful examination of the large migrating flocks of sparrows in the northwestern part of the State should reveal a few Harris's Sparrows as it does all along the eastern border of their range. A specimen was seen about fifty miles north of here, in Jackson Park, Chicago, September 30, a circumstance that caused me to look for them in the Dunes.

The skins of the specimens taken are in the Harris Extension Collection.—H. L. STODDARD, *N. W. Harris Public School Extension of Field Museum, Chicago, Ill.*

Additions to the Birds of Lake County, Minnesota.—A visit to Lake County during the latter part of the summer of 1920 resulted in the following additions to my list, published in 'The Auk,' October, 1920, p. 541:

Colymbus auritus (Linn.). HORNED GREBE.—August 6 three Horned Grebes were observed at close range near the south shore of Lake Bald Eagle.

Pisobia maculata (Vieill.). PECTORAL SANDPIPER.—August 25 four specimens were shot and about two dozen others observed on a mud-flat in the Isabelle River some distance below Rice Lake.

Pelidna alpina sakhalina (Vieill.). RED-BACKED SANDPIPER.—August 25 one of these birds, in the company of four Yellow-legs, was shot along the Isabelle River about a mile below Rice Lake.

Ereunetes pusillus (Linn.). SEMIPALMATED SANDPIPER.—August 20 one was shot out of a flock of four on the east shore of Lake Isabelle. On

the 25th several were observed, and one specimen was shot from among a flock of Pectoral Sandpipers, in the locality mentioned above under the last-named species.

Loxia curvirostra minor (Brehm.) CROSSBILL.—August 9, 11, 16 and 23 Crossbills were observed at various points along the Isabelle River between Lake Bald Eagle and Rice Lake. Most of the flocks were small, consisting of not over a half dozen individuals, but on the 11th a flock of twenty-three was seen at our camping place at Bald Eagle.

Passerculus sandwichensis savanna (Wils.). SAVANNAH SPARROW. August 6 a Savannah Sparrow was seen along the Isabelle river at Lake Bald Eagle. During the 26th, 27th and 28th, while enroute to Rice Lake, several were seen and one was shot, along the upper courses of the Isabelle River.

Melospiza lincolni lincolni (Aud.). LINCOLN'S SPARROW.—This shy bird was found to be fairly common in the low dense shrubbery bordering many portions of the streams in the territory between Lakes Gabro and Bald Eagle. They were most frequently observed where the streams had their course through grassy meadows. August 8 and 30 an immature and an adult specimen respectively were shot at Bald Eagle.

Melospiza georgiana (Lath.). SWAMP SPARROW.—Between August 14 and 30 this species was found to be common in the territory between Lakes Rice and Bald Eagle and along the Island River, where many of our observations were made during that period.

Progne subis subis (Linn.). PURPLE MARTIN.—August 3 to 5 numerous Martins were observed above the meadows bordering the Isabelle River and its tributary, the Snake River, just before the first-named enters Bald Eagle. None was seen thereafter.

Riparia riparia (Linn.). BANK SWALLOW.—Several were observed among the Martins in the locality mentioned and a single individual was seen at Rice Lake August 1. Among the Martins and Bank Swallows were also numbers of Tree Swallows, but while the Martins remained to the 5th, the two last-named species disappeared from that locality on the day we arrived and first saw them.

Vermivora ruficapilla ruficapilla (Wils.). NASHVILLE WARBLER. August 26 a specimen was shot at the first portage above Rice Lake. On the 27th several were seen in the same locality, and on the 28th a number were observed along the Isabelle River between the first and second portages above Bald Eagle.

Wilsonia pusilla (Wils.). WILSON'S WARBLER.—August 26 a male specimen was shot at the first portage above Rice Lake.

Wilsonia canadensis (Linn.). CANADA WARBLER.—August 1 a single individual of this species was seen on the South Kawishiwi-Gabro Lake portage.

Planesticus migratorius migratorius (Linn.). ROBIN.—August 3 a single individual was seen on the south shore of Lake Gabro and on

the 5th two were seen at the first portage above Bald Eagle. None was seen thereafter.

I am indebted to the U. S. Biological Survey for verifying the identification of the following species taken several years ago:

Dendroica tigrina (Gmel.). CAPE MAY WARBLER.—July 16, 1914, a specimen was taken on the South Kawishiwi near the Gabro Lake outlet.

Dendroica castanea (Wils.). BAY-BREASTED WARBLER.—1912: a specimen was taken June 23, on the Clear Lake-North Kawishiwi portage. 1913: one was taken August 30, on the Isabelle River just above Lake Bald Eagle.

Dendroica virens (Gmel.). BLACK-THROATED GREEN WARBLER.—One specimen was taken July 16, 1914, on the South Kawishiwi River at the Gabro Lake outlet.—CHARLES E. JOHNSON, *University of Kansas, Lawrence, Kan.*

Three Important Records from Hatley, Stanstead County, Quebec. Bartramia longicauda. BARTRAMIAN SANDPIPER.—It is with pleasure that I am able to again record the probable breeding of this handsome species near Hatley, an example being seen in a field adjoining the roadside between Burrough's Falls and Dufferin Heights on June 24, 1920. It is just seven years since my last record was made, when a nest and set of four eggs was found on May 24, 1913 (see 'The Auk,' Vol. XXXIII, 1916, No. 1, pp. 65–66).

Oporornis philadelphia. MOURNING WARBLER.—I am indebted to my friend, Mr. L. McI. Terrill, of St. Lambert's, P. Q., for being able to add this species to my already existing list of twenty-three warblers for the neighborhood of Hatley. The bird which was a young male of a family group was secured whilst ascending Mt. Orford (2860 feet) on August 1, 1920, and later on in the day another family was observed. Mt. Orford is eighteen miles from my house as the crow flies, and lies just outside the extreme northwest corner of Stanstead County, the mountain itself being in Sherbrooke County. When I visited the locality in 1918 it struck me as being a particularly rich one, and I should not be surprised if the Black-poll Warbler is eventually found there in some numbers during the spring and fall, the birds migrating through the chain of hills extending from the State of Vermont along the western shore of Lake Memphremagog to practically the St. Francis River, by means of which latter, and the St. Lawrence River, they eventually reach their breeding grounds in the far north. The Mourning Warbler is the only new addition so far this year to my list of Hatley birds, the total of which now stands at 176 species.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER.—It is a pleasure to be able to add this little flycatcher to my list of breeding birds, a nest and set of five eggs being found on June 14, 1920. The site was a tamarack and cedar swamp, the nest being sunk in the sphagnum moss at

the foot of a tiny sapling tamarack. It was composed outwardly of ordinary moss, whilst the lining inside consisted of fine dry grasses, the dimensions being as follows: outside diameter three, inside one and a half inches; outside depth two and a half, inside one and a half inches. It contained an extra full set of five eggs (four being the usual number) whose average dimensions were .62×.49. The notes of the male were first heard whilst searching for orchids, and after adopting the tactics as explained in my "Singing Tree" paper ('Auk,' Vol. XXXVI, 1919, No. 3, pp. 339–348) the nest was eventually found at a distance of eighteen and twenty yards respectively from the favorite singing trees of the male. With the addition of this little flycatcher my list of birds actually found breeding at Hatley now stands at 85 species, with another 15, some of which are known and others believed to breed more or less regularly, but whose nests, eggs or young have so far escaped detection.—H. Mousley, *Hatley, Quebec.*

Ornithological Notes from Southeastern Alaska.—In anticipation of the appearance of a new 'A. O. U. Check-List' it would seem opportune to publish the appended data for the consideration of the committee in charge. While most of this is in the nature of extension of ranges as given in the last 'Check-List,' there are included a few suggestions as to vernacular names.

Colymbus holboelli and **Colymbus auritus.**—Both of these grebes winter plentifully in the southern part of southeastern Alaska. They were common, for grebes, throughout the winter of 1919–20 at Craig, Prince of Wales Island, and at the present writing, November 11, they are common in the vicinity of Wrangell.

Gavia adamsi.—The writer knows of several unpublished records of this bird for southeastern Alaska, but, at present, is unable, for various reasons, to present all of them. He has personally met with the species on three occasions, as follows: adult bird seen at close range near Craig October 17, 1919; adult seen in outer Shakan Bay, Prince of Wales Island, September 24, 1920; and immature female taken at Wrangell, October 5, same year.

Larus argentatus and **Larus brachyrhynchus.**—Both rather common in the vicinity of Craig during the past winter, the latter being the more plentiful.

Branta canadensis occidentalis.—The vernacular name, White-cheeked Goose, being inappropriate for this bird, inasmuch as it is no more white-cheeked than are several other allied races, it is here proposed that the name be changed to the Western Goose. Its habitat should also be corrected, as there is no satisfactory record of its occurrence in California either in summer or winter. As to its subspecific validity which has recently been questioned (Figgins, 'Auk,' XXXVII, Jan., 1920, pp. 94–102), the writer, having been familiar with the bird in southeastern Alaska for several years past, and having taken numer-

ous specimens and examined a great many more, can see no reason to question its validity as a geographical race. He considers it very probable that Mr. Figgins was misled by the erroneous nature of the characters given by many authorities as distinguishing this from the other allied subspecies. It is also very possible that a lack of breeding specimens of the southeastern Alaskan bird was a contributing feature to Mr. Figgins' deductions. *Branta canadensis occidentalis* is not only a breeding bird in this part of Alaska but it remains in apparently undiminished numbers throughout the winter. It is locally known as the "native goose."

Olor columbianus.—Though the writer has not personally noted this bird in winter in this region, several undoubted records by reliable observers of its occurrence at this season have come to his attention. These all apply however, to the territory a few miles north of the Canadian boundary. Mr. Winfield Wood, at present with the U. S. Signal Corps, shot a swan from a flock of four at Essowah Lake, west side of Dall Island, in early February, 1913. The same observer took a bird from a flock of twenty at Devil's Lake, Dall Island, the middle of March following, and saw a single bird at Sulzer, Prince of Wales Island, December 26, 1916. A swan was killed by William Hughes at Howkan, Long Island, December 20, 1915, and was eaten by the family of the late Mr. W. D. McLeod.

Gallinago delicata.—Fairly common in the region during the early part of the winter, at least. Taken at Craig as late as December 7, 1919, and is still seen almost daily at Wrangell (November 11, 1920). It may, however, go farther south during the latter part of the winter, as it has not been noted by the writer during January, February or March.

Arenaria melanocephala and **Haematopus bachmani.**—Winter commonly at least as far north as Craig.

Lagopus lagopus alexandrae.—A rather common bird throughout the region, south to the extreme southern end of Dall Island. Many specimens taken on Kuiu, Prince of Wales, Hecate, Suemez, San Juan, Dall and Long Islands at different seasons of the year. Have never taken any rock ptarmigan in any of these localities and doubt their occurrence, unless on Kuiu Island which has not been thoroughly covered.

Accipiter velox.—Seen and taken frequently at Craig throughout the winter of 1919–20.

Falco sparverius sparverius.—One bird seen at close range in the town of Craig September 11, 1919. Another seen in the same locality by A. M. Bailey, U. S. Biological Survey, March 10, 1920. The writer has never been able to perceive the differences ascribed to the race *deserticola*, hence the above heading.

Glaucidium gnoma subsp. ?—A female Pygmy Owl was taken on Dall Island August 24, 1920, and a male at Wrangell October 20 following. There are also two specimens taken at Wrangell in a local collec-

tion of mounted birds. Have not yet had the opportunity of comparing these specimens with others from different localities, so am not certain as to subspecific determination.

Ceryle alcyon caurina.—As this race has been shown to occupy the entire western portion of the country, south to the southern U. S. border, it would seem fitting that it be known as the Western instead of Northwestern Kingfisher, as used in the 16th Supplement to the 'Check-List.'

Cyanocitta stelleri stelleri.—The writer can see no reason for referring the crested jay from Prince of Wales Island to the form *carlottae*. As has been pointed out by Swarth (Univ. Cal. Pub. Zool. 7: 1911, pp. 78–79), birds from this locality are identical with those occurring throughout the entire Sitkan district.

Pinicola enucleator flammula.—Not very abundant, but as common in summer as in winter. A pair was seen feeding young in a nest fifty feet up in a spruce tree on a mountainside near Cape Lookout, Dall Island, July 10, 1915.

Melospiza melodia rufina. Melospiza melodia caurina.—Both *rufina* and *caurina* were common at Craig throughout the past winter, but, at the present writing, *caurina* is the only form to be found at Wrangell. This latter place, though only about a hundred miles distant from Craig, is, by virtue of its proximity to the mainland, considerably colder.

Nannus hyemalis pacificus.—Rather common at Craig during the past winter, but apparently absent at Wrangell now, though one was seen as late as November 3.

Certhia familiaris occidentalis.—As this bird occupies a much greater range outside of California than it does in that State, would it not be more appropriate to translate its scientific name literally and let it be known as the Western Creeper.

Regulus satrapa olivaceus.—Common at Craig throughout the past winter and still plentiful at Wrangell at date of present writing. (November 11, 1920).—George Willett, *Wrangell, Alaska.*

A Striking Case of Adventitious Coloration.—On February 8, 1920, I spent the afternoon with my family at a point in Moraga Valley, Contra Costa County, California, some five miles, airline, northeast of Berkeley. My son Willard undertook to exercise the shotgun for the purpose of securing some specimens of local birds such as happened to be needed at the Museum. In so doing he chanced upon the interesting case now reported.

We had been hearing two Plain Titmouses in a willow thicket up a ravine, and Willard proceeded to stalk them. One was finally shot and brought to me—an object of immediate marvel. For, instead of the usual light ashy gray tone of color, its lower surface was bright yellow. The other bird was still calling from the willows and when brought to hand it, too, exhibited much yellow, though not of the intensity shown by the first. Subsequent dissection, when the two birds were made up

into study skins, showed the first to be a male and the second a female. The two thus evidently constituted a mated pair.

The process of skinning left the birds slightly reduced in vividness of yellow. Before skinning, however, comparisons were made with the plates in Ridgway's (Color Standards)(1912). The breast of the male was found to be strong, clear "amber yellow"; that of the female a somewhat weaker tone of the same color. In both birds the amber yellow tinged also the forehead, lores, the soles of the toes and, in faint "wash," the tail; also, in the male, the anal tuft.

A significant circumstance was that the tail of the male, which was decidedly longer than that of the female, was strongly bent to the right. This indicated that the bird had been accustomed to roost in a tree cavity of rather limited capacity, and also that in settling for the night it had habitually pivoted from right to left. Furthermore, both titmouses probably slept in the same cavity.

Various persons about the University were shown the birds before skinning. One ornithologist of some standing exclaimed: "What tropical species is that!" A frequent comment was that here was a "sure enough mutation." But also the suggestion recurred that the birds must have become discolored from some extraneous source. And pollen quickly came to mind. The microscope soon showed that the yellow coloration was indeed of an extraneous nature; great masses of pale yellow bodies adhered to the barbs of the contour portions of the feather vanes. These bodies were quite uniform in appearance, elliptical, with a groove in one side, and with the surface finely speckled or "sculptured." They measured dry about 3.6 by 6.0 micra. In water they became more nearly spherical in shape.

Appeal was then made to the botanists to see whether we did not have here a simple case of pollen-carrying by birds. Professors H. M. Hall and N. L. Gardner kindly looked into the matter. Comparisons were made with various pollens available in February—willow, alder, hazel, etc.—but nothing could be found which served to solve the problem. It was the consensus of opinion that the grains in question belonged as pollen to no plant known to the locality; but a fruitful suggestion *was* offered, namely, that the grains might be the spores of some fungus. Appeal was then made to Professor W. T. Horne, Plant Pathologist of the College of Agriculture. After examining the material he thought it likely that we had to do with spores of some species of slime-mould (Order Myxomycetes). Such fungi are liable to occur in great quantity after a wet period in and around rotted-out hollows of tree-trunks. This brought the matter much nearer to a satisfactory solution.

As to the role of the titmouses as spore carriers, the present case cannot be counted definitely against them. For nearly all the slime-moulds, according to Professor Horne, are non-economic in bearing, being saprophytes; in other words, these fungi gain their nourishment from wood

or other vegetable substance already dead or decaying. Our titmouses, therefore, could hardly be branded as a detriment to the oak and willow trees in which they lived, as they might have been with propriety if the spores had been found to belong to some parasitic fungus injurious to living trees.

I later sent some of the spore-laden feathers to Professor Thomas H. Macbride, of Iowa University, an authority on certain groups of fungi. Although he has tried a variety of culture media, in an attempt to germinate the spores, no hyphae have as yet appeared, and no other promising clue to more exact determination has been found. Professor Horne's diagnosis remains unchallenged. Meanwhile, after the lapse of nine months, the two skins of Plain Titmouse (*Baeolophus inornatus inornatus*) in question have faded out considerably, so that the amber yellow is pale; their "tropical look" has almost gone. Yet, by daylight, they catch the eye quickly where they lie in the series of gray-colored *inornatus*. They, and their loads of spores, constitute Nos. 40,391 and 40,392 in the bird collection of the Museum of Vertebrate Zoology.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, Calif.*

RECENT LITERATURE

McGregor on 'Some Features of the Philippine Ornis.'—In this admirable paper[1] Mr. McGregor gives us a very clear picture of Philippine bird life, the physical features of the islands and the tremendous modifications that human agencies have effected in them and consequently in the character and distribution of the avifauna.

The destruction of forests and the introduction of plants and trees from elsewhere constitute one of the greatest elements of change and in the Philippines as here, bird life and plant life are intimately related, and change in one means change in the other. While there is no doubt that at one time the native forest covered practically all of the islands, today it has been completely destroyed over two-thirds of the area. Two-fifths of the surface of the islands is now grass land and cultivated fields and even where the forest has been allowed to grow up it is a second growth jungle of bamboo, etc., totally unlike the tall, dark, silent, primeval woodland which was practically free from underbrush. One-half of the thousand species of plants known today from the Philippines are introduced. The effect of all this on the native bird life can readily be imagined and the average visitor to Luzon today never sees any of the primeval forest or the birds that live there.

[1] Some Features of the Philippine Ornis with Notes on the Vegetation in Relation to the Avifauna. By Richard C. McGregor, Ornithologist, Bureau of Science, Manila. Philippine Journal of Science, Vol. 16, No. 4, April, 1920, pp. 361–437, Plates 1–35.

Mr. McGregor gives us a most attractive picture of the splendid native forest with the roving bands of small birds, many species closely intermingled, which go coursing through the trees, their passing followed by absolute silence until another band appears. There are certain birds, of course, that frequent the cultivated sections but they are surprisingly few in number.

The first bird to be seen by the visitor to Manila will be the European Tree Sparrow, while the next will be an Asiatic Starling, both, of course, introduced; a rather striking parallel to what one would see in any eastern American city or in those of Europe. There are listed twenty-four others—two doves, four hawks, two owls, a roller, two bee-eaters, two cuckoos, a starling, an oriole, a Java sparrow, a finch, two wagtails, etc.—which we are told are "nearly all that can be found within several kilometers of Manila." The remainder of the ornis of the islands consists of forest birds and water birds. The distribution of the former is discussed by the author in considerable detail and the groups of species are correlated with the different types of forest, the pine-covered highlands, best developed in Luzon but found also on Mindoro, Negros and Mindanao, having perhaps the most interesting fauna.

In connection with distribution Steere's well-known law is discussed and a number of exceptions to it are pointed out, the affinities of the avifauna of the several islands are also considered and there is a table of the endemic species showing the presence or absence of each in the eleven groups into which the islands are arranged faunistically. The total number of species and subspecies now known from the Philippines is 639 of which 469 are endemic. In this discussion, by the way, the evil of the modern excessive generic division is very evident. In Wallace's writings as well as in those of Steere, Worcester and others, the old-time genera were of the greatest importance in discussing the relationship of island as well as continental faunas, but the finer divisions of modern taxonomy are almost useless for this purpose, the number of endemic genera in any island depending wholly upon how finely we draw our lines and much of the tabulation of Wallace would be impossible today without the use of some sort of "super-genera" that would indicate very important and obvious affinities which are totally lost sight of in present-day nomenclature.

Of economic interest is a section of the paper which discusses the food of introduced Starlings in relation to locusts and a list of fifteen of the most important locust-eating birds is given. There are minor notes on the food of fourteen other species of Philippine birds.

Thirty-five half-tone plates illustrate the different types of country and forest and add materially to the value of Mr. McGregor's excellent paper, which gives one a better idea of the character of Philippine bird life that anything that has yet appeared.—W. S.

Swarth on the Fox Sparrows.—We doubt whether the geographic races of any species of bird have ever been discussed at such length and with such painstaking detail as has been done by Mr. Swarth in his review of the Fox Sparrows.[1] About 150 pages have been devoted to setting forth the differences between the sixteen races that he recognizes, the details of their distribution, variation, etc., and discussion of the broader problems that the study has brought up.

The several new forms that Mr Swarth has established in the course of his investigations have all been described in earlier papers and it would be idle to comment upon the accuracy of his work, without the material and the time that he has had. We may feel sure, however, that in such a piece of work as this by an author of his standing the forms recognized are valid geographic races, though of course the point as to how many of them, each one of us would deem worthy of designating by name is purely a matter of personal opinion. All this concerns only those who specialize in "speciation," as Dr. Grinnell has termed it. Suffice it to say that of the three groups of Fox Sparrows long recognized, Mr. Swarth admits two races of the *iliaca* group; six of the *unalaschensis* group, from the northwest coast strip, and eight of the *schistacea* group, from the California mountains. By using these "group" names, moreover, he gets along very well without making three separate species as we fear some would feel called upon to do. We should prefer, however, to use the group names in italics without capital initial letters since in the form in which they are printed some over-enthusiastic nomenclaturist of the future may construe them as genera.

The most important part of Mr. Swarth's study is the light which it throws upon the nature of variation exhibited by these birds and its correlation with environment and physical barriers. The northwest coast group he finds is continuously distributed along the mainland from Alaska to Puget Sound with "gradual well-defined variation from one extreme to another" with "abrupt accentuation of certain features at intervals, serving for the differentiation of the several subspecies." The author goes on, however, to show that "the dividing lines between the forms do not, to our knowledge, fall where there are physical barriers to distribution (save in *insularis*), and we do know that there are many such barriers that have no effect."

An example of the last is *Passerella iliaca townsendi* which occurs on the mainland, on islands in the Alexander archipelago, and on the Queen Charlottes, with practically no change in its characters.

The members of the *schistacea* group occupy boreal islands in the mountains separated by areas unsuited for Fox Sparrows, but curiously enough, one subspecies will occupy several of these islands which are quite as

[1] Revision of the Avian Genus Passerella with Special Reference to the Distribution and Migration of the Races in California. By H. S. Swarth, Univ. Calif. Publ. in Zool., Vol. 21, pp. 75–224, September 11, 1920.

widely separated from one another as they are from islands in which another form occurs.

These are the sort of facts brought out by such a study as Mr. Swarth has made, and they are the vindication of this kind of research. The mere establishment of a subspecies for the sake of proposing a new name has little to recommend it.

The discussion under each race is very full and there are frequent maps showing breeding and winter ranges together with outline cuts of bills and wings and a list of some 1600 specimens used in the study. There are several half-tones illustrating habitats and a beautiful colored plate by Allan Brooks. Attractive as is this plate, however, we think that for the purposes of such a study as this a more diagramatic plate would have been better with heads all pointed the same way so that comparisons could be more readily made.

One more thought occurs which is no reflection upon Mr. Swarth's admirable paper, and that is: could not the results have been presented more briefly and is it necessary to list every specimen used in such a study? In these days of the high cost of printing the author who can adequately express his ideas in the fewest words is setting the example that we need for it is no easy matter today to secure the publication of such a monograph as Mr. Swarth has produced.—W. S.

Griscom and Nichols on the Seaside Sparrows[1].—The authors of this paper seem to have had a much more difficult problem before them than had Mr. Swarth in the Fox Sparrows, and while they do not pretend to have settled it and have only devoted a few pages to its consideration they seem to us to have come pretty close to grasping the underlying principle which is responsible for the development of the puzzling series of forms into which the group is divided. The cropping out of dark-colored races between two of much lighter tone along the Florida and Gulf coasts, precludes any idea of a gradual change from one extreme to another, and the authors' suggestion that it is the character of the local salt marsh environment that is responsible, seems most plausible. Birds which live almost entirely in the shelter of grass or scrubby bushes must be strongly affected by the character of this vegetation, the more open bushes, admitting more light tend to produce light colored forms while denser vegetation would be likely to produce darker birds. It is indeed the problem of the dense forest and scrub growth in miniature and another illustration of the close affinity of botany and ornithology in solving evolutionary problems.

The material at the authors' command was, however, insufficient to demonstrate positively this association of environment with subspecies or to show whether or not the several forms adhere strictly to the limits

[1] A Revision of the Seaside Sparrows. By Ludlow Griscom and J. T. Nichols, Abst. Proc. Linn. Soc. N. Y., No. 32, pp. 18–30, November 3, 1920.

of their peculiar environments or spread beyond the barriers as Mr. Swarth tells us that the Fox Sparrows do. Quite likely, however, it is some other factor that has played a part in differentiating the Fox Sparrows and not immediate physical barriers.

Messrs. Griscom and Nichols have recognized nine forms of the Seaside Sparrows, two of which, *Passerherbulus mirabilis* from Cape Sable and *P. nigrescens* from Merrit Island, Florida, are recognized as species while the others are considered as subspecies of *P. maritimus*. Two are described as new, *P. m. howelli* (p. 22), ranging along the Gulf coast of Alabama and Mississippi, and *P. m. juncicola* (p. 25), from East Goose Creek, Wakulla County, Florida.—W. S.

Silloway on the Birds of the Palisades Interstate Park.—This pamphlet,[1] intended as a guide-book to the bird life in certain sections of the Palisades Interstate Park begins with an account of its physical features and the prominent points of interest, with numerous excellent photographic illustrations. The ornithological portion consists of two annotated lists, one for the vicinity of Bear Mountain, containing sixty species; the other for the vicinity of the Guest House, with sixty-one species, both based upon field studies made during the year 1918, with a supplementary list of nineteen species added during 1919.

The annotations consist of notes on nests and breeding birds observed by the author, and some general information regarding the habits of the various species. With some of the author's statements we can hardly agree; as when he says that the Chat "is a mocking warbler, and owing to the character of its noisy imitations the hearer usually refers the calls to the species imitated and does not suspect the presence of the Chat." We think that anyone at all familiar with the notes of the Chat will recognize them instantly and will not be likely to take them for the imitation of any other species, much less be misled by them. Sometimes, too, the habits mentioned by the author as characteristic of a certain species gain unmerited importance from the fact that he omits all mention of them in writing of a closely related species. The Louisiana Water-Thrush, for instance, is described as a "walker," while there is no mention of walking in connection with the Ovenbird. The color of the back of the latter species, moreover, we should hardly describe as "brown." Much information is duplicated in the two lists and it would seem to have been better to have combined them, adding separate nominal lists, if desired, of the few species peculiar to the two regions. The reversal of the order of the species, throwing the list out of harmony with all of the modern standard works, is regrettable.

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[1] Guide to the Summer Birds of the Bear Mountain and Harriman Park Sections of the Palisades Interstate Park. By P. M. Silloway, M.S., Investigator in Forest Zoology, N. Y. State College of Forestry at Syracuse University, Bull. No. II, Vol. IX, No. 21, March, 1920, pp. 1–105, numerous text cuts and map.

In spite of these minor defects, some of which may after all be merely matters of personal opinion, Mr. Silloway's little pamphlet will prove of great value to all who camp in or visit the park—and they are already numbered by the thousands—while it will also be a record of present-day conditions for comparison with those of future years.—W. S.

Witherby's 'Handbook of British Birds.'—The last part of this work[1] which we have received covers the Swifts, Nightjars, Roller, Kingfisher, Woodpeckers, Cuckoos and most of the Owls.

Among the nomenclatural points that we notice is Dr. Hartert's advocacy of the use of *Apus* for the Swift, saying that we "must suppose" that Scopoli purposely made the two names *Apus* and *Apos* different. Others, however, are privileged to take an opposite view of the matter and an arbitrary ruling is necessary, if we are to have uniformity in such cases. Such a rule we find in the A. O. U. 'Code' which regards such names as the same. On much the same grounds *Agolius* Kamp is used in place of *Cryptoglaux*, as in the 'Hand-List' of Hartert et al., but the specific name *funerea* is now used as in the A. O. U. 'Check-List.'

There is an excellent half-tone plate of Owls' heads and numerous line drawings, while the general high standard of the work is fully maintained. We congratulate the author and his associates upon the excellent progress that they are making.—W. S.

Bangs and Kennard on the Birds of Jamaica.—Messrs. Bangs and Kennard have contributed the list of birds[2] to the 1920 edition of 'The Handbook of Jamaica.' The list is entirely rewritten and is a distinct improvement upon the Sclater list of 1910, adding a number of species there omitted and bringing the whole subject up to date.

There are now 219 species and subspecies recorded from the island, of which, however, 26 need confirmation. Three species have been introduced, 81 are migrants or winter visitants from the north, five are summer visitors from the south, while 104 are resident—exactly half of this number, including one family (Euneornidae) and eleven genera, being endemic.

The authors seem to lack the courage of their convictions in one case of nomenclature or are anxious to secure all possible "subspecific" credit, since they propose a new name, *Charadrius vociferus ternominatus* (p. 8) for *Oxyechus vociferus rubidus* Riley, which, as they say, *would* be preoccupied by *Charadrius rubidus* Gmel. if we refuse to recognize *Oxyechus* as a distinct genus. But the authors show no sign of rejecting it and hence

[1] A Practical Handbook of British Birds. Edited by H. F. Witherby. Part IX (Vol. II, pp. 1–80), September 20, 1920. Price 4s, 6d. per part.

[2] A List of the Birds of Jamaica. By Outram Bangs and Frederic H. Kennard. Excerpted from 'The Handbook of Jamaica,' 1920. Jamaica, 1920, pp. 1–18.

do not use their own new name. It would be sad to think that the crop of subspecies were so nearly harvested that we must needs propose names that *might* be required in various contingencies!

It is interesting to note that the two races of *Dendroica dominica* occur on the island in winter in about equal numbers and that the authors "feel certain" that the Prairie Warbler does not breed on the island as has often been claimed. We trust that the present authors' services may be again available when another edition of the 'Handbook' is to be prepared as their work has been carefully and conscientiously performed.—W. S.

McClymont's 'Essays on Early Ornithology.'—In a handsomely printed little brochure[1] of limited edition, Mr. McClymont presents six short essays on early ornithological writings under the headings: 'The Rukh of Marco Polo'; 'The Penguins and the Seals of the Angra de Sam Bras'; 'The Banda Islands and the Bandan Birds'; 'The Etymology of the Name Emu'; 'Australian Birds in 1697'; and 'New Zealand Birds in 1772.' There are three plates representing a young *Casuarius uniappendiculatus* in the British Museum, a reproduction of Schiffart's plate of a Cassowary, probably *C. galeatus*, published in 1725, and a Blue-faced Gannet from a specimen in the Royal Scottish Museum.

The "rukh" (or "roc") our author concludes is a combination of a myth arising from the simourgh of the Persians and the observation of some real bird possibly a sea eagle. The name "emu" or the earlier "eme" referred to the Ceram Cassowary and it is suggested that it is a Portuguese modification of the Arabic name "neama" indicating the Cassowary. The chapter on Australian birds refers to the Dutch East Indian Company expedition in 1696 which discovered not a few of the striking birds of this continent and Mr. McClymont presents strong arguments for identifying among the species referred to in journal of the voyage; the Black-necked Swan, Cape Barren Goose, Musk Duck, and Emu. The correct identification of these very early references to birds is an attractive field of research but a difficult one, as early voyagers were not well versed in ornithology, and in attempting to describe the strange birds that they encountered they were forced to make use of the names of common European species having no affinity whatever with them. With our present knowledge of the avifauna of the countries which they visited there is, however, often some casual mention of structure or habit which gives us the clue, although there is always the possibility of the species seen in early times having become extinct.

Mr. McClymont has given us an interesting bit of ornithological history and his publishers a beautiful piece of book making.—W. S.

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[1] Essays on Ornithology and Kindred Subjects. By James R. McClymont. M. A. Author of 'Pedraluarez Cabral,' 'Vicente Anes Pincon' (with three plates). London, Bernard Quaritch, Ltd., 11 Grafton Street, New Bond Street, 1920, small quarto, 1–35.

Scoville's 'Everyday Adventures.'—Under this title Mr. Scoville has published another collection of out-door sketches[1] which appeared originally in various magazines. Some like those of his earlier volume—'The Out-of-Doors Club'—describe trips afield with his children, while others, notably those from the 'Atlantic Monthly,' are more serious contributions both to literature and natural history.

Mr. Scoville has an attractive style and places his "adventures" before us in a realistic manner, while a vein of humor crops out at frequent intervals. The volume is readable and instructive and he who opens it will be likely to read it through. A notable point about our author's writings is that they chronicle the doings of birds and mammals in parts of the country which have not often been treated of by popular nature writers—the Pennsylvania mountains, both the Alleghanies and the Pocono; the New Jersey Pine Barrens and the river swamps of Delaware and Maryland. And as a result the Cardinal, the Carolina Wren and the Tufted Tit come in for the same sort of familiar treatment that the more northern New England birds have long enjoyed. It is, however, a distinctly New England bird, the Hermit Thrush, that has aroused his greatest enthusiasm, even though he has studied it in the mountains of Pennsylvania and shows that other states also have a claim to it: "In the world where that singer dwells," he writes, "there is no fret and fever of life and strife of tongues. On and on the song flowed, cool and clear. * * * It was as if the wood itself were speaking. There was in it youth and hope and spring and glories of dawns and sunsets and moonlight and the sound of the wind from far away. Again the world was young and unfallen, nor had the gates of Heaven closed. All the long-lost dreams of youth came true—while the hermit thrush sang."

Certain chapters are contributions to ornithology of no little importance, as for instance the account of the Raven's nesting in the Pennsylvania mountains. As Mr. Scoville truly says, the ornithologists who have had the privilege of looking into a Pennsylvania Raven's nest may be counted on the fingers of one hand, so that his account forms an almost unique contribution to the history of this notable bird. One who has not the key to the situation may marvel at the number of really rare birds whose nests the author has studied, but to those who recognize in "the botanist," "the banker," "the artist," etc., fellow members of the Delaware Valley Ornithological Club and the American Ornithologists' Union, upon whose trips afield Mr. Scoville has been a welcome companion, the opportunities that he has enjoyed are at once apparent.

There are a few lapses, as: the reference to Fox grapes when Chicken grapes are obviously intended (p. 33); and the statement, doubtless intended sarcastically but likely to be taken seriously, that the Philadelphia Vireo is "so named because it is never by any chance found in Philadel-

[1] Everyday Adventures. By Samuel Scoville, Jr. The Atlantic Monthly Press, Boston [1920]. 8vo., pp. 1–241, 24 plates. Price $3.00.

phia." The original specimen was as a matter of fact taken in the city and a number of others have been seen or taken in subsequent years. Mr. Scoville's book is by no means limited to accounts of bird-life—the four-footed beasts, the snakes, the wild flowers, trees and stars all come in for consideration—nor is literature forgotten, and in speaking of his cabin in the Jersey pines he refers to the book shelf that is maintained there, for, says he, "no book ever tastes so well as before a great fire in the heart of the wilderness, even if the wilderness be only a few miles away." And those who love the wilderness, we might add, will have no trouble in tasting it as they peruse the pages of Mr. Scoville's little volume.—W. S.

Hudson's 'Birds of La Plata.'—The first ornithological work of W. H. Hudson was the 'Argentine Ornithology' prepared in collaboration with the late Philip Lutley Sclater, the biographies of the species with which he became acquainted during his life in La Plata being prepared by Hudson and the technical portion—synonymy etc., with brief notice of such species as had been found in the more northern provinces of Argentina, being supplied by Sclater. Owing to the very limited edition the work is usually to be found only in scientific libraries and but few of Hudson's later admirers have had an opportunity of reading these biographies. This fact alone would have warranted a new edition of the work but surprising as it may seem, in the thirty years that have intervened since the appearance of the 'Argentine Ornithology' practically nothing additional to it has appeared, so far as the life histories of the birds are concerned, and Mr. Hudson's biographies are still the best accounts of the La Plata birds that we have. This double need of a new edition has just been met by the publication of Mr. Hudson's portion of the original work with the synonyms and references to the birds of northern Argentina omitted. As the author says in the preface, the character of the work is thereby altered and a new title had to be provided and in as much as the biographies all relate to the birds of the provence of La Plata it was thought proper to call it 'Birds of La Plata.'

The accounts of the various species are almost identical with those of the earlier work, most of them being reprinted verbatim, but a number of the more inconspicuous species which were not treated at length are briefly mentioned in the closing paragraph of the sketch of an allied form which demanded more detailed consideration. This together with the elimination of the species of northern Argentina has reduced the number of specific headings from 434 to 190, although the extent of the biographical portion is the same in each work. The earlier book contained twenty hand colored lithographic plates, while the present work is illustrated by twenty-two beautifully printed three-color process plates, from paintings by H. Gronvold. Only two of these latter plates, however, illustrate the same species as those of the earlier series. Of the present pictures those of the Military Starling, the Many-colored Tyrant—that little Kinglet-like Flycatcher, and the Pampas Woodpecker are perhaps the most pleasing.

Of the 190 birds whose life histories Mr. Hudson has traced for us and which comprise the most characteristic and most abundant species of the La Plata avifauna, it is interesting to note that of the eighty-five Passerine birds only forty-two are song birds, while forty-three are non-oscinine. In one of our eastern United States the figures would stand 132 to nine showing the far greater proportion in La Plata of non-oscinine species, notably Tyrant Flycatchers, of which there are 28, and Woodhewers with 22 species. The song birds of Mr. Hudson's country comprise 6 Thrushes, 6 Swallows, 13 Finches, 13 Troupials, 2 Wrens, a Tanager and a Pipit. The birds other than Passerine are 2 Woodpeckers, 2 Cuckoos, 2 Parrots, 2 Owls, a Hummer, a Goatsucker and a Kingfisher, 14 Hawks, a Vulture, 5 Pigeons, 4 Tinamous and a Rhea together with 56 "water birds."

The introduction contains a brief history of the work and comparison of Argentine bird-life with that of the rest of South America, besides a little personal touch describing an early incident in the author's life.

Mr. Hudson's bird biographies are delightful reading and like all of his accounts of this far away land and its wild life he manages to bring in the atmosphere of the Pampas, and as we follow his pages we are able to picture many birds in their native haunts and in all the vigor of their everyday life, which have hitherto been to us merely stuffed specimens or denizens of the cages at the Zoo. Those who have read and re-read the more recent works of Mr. Hudson will be glad of the opportunity of familiarizing themselves with this earlier product of his pen, and lovers of beautiful books will wish to add the two volumes of 'Birds of La Plata' to their libraries. The work is clearly printed in large type on extra heavy paper with broad margins and attractive title pages, while the excellence of the plates has already been referred to. It is a gratification, when a book is found worthy of reprinting, to have the work done well; and the publishers have certainly fulfilled their part in bringing out these volumes.—W. S.

New Genera by Ridgway.—It is gratifying to realize from the appearance of this little paper[1] that Mr. Ridgway is at work on the final volumes of his 'Birds of North and Middle America.' The seven new genera which he proposes are for Eagles and Rails and are for species which his researches show are to be separated from those with which they are usually associated. The differences pointed out seem however to be of unequal value and it seems unfortunate that subgenera cannot be more frequently used to indicate the lesser differences; in which case the genera would not only denote the greater differences between groups but . lso the relationships between minor groups.

The new names proposed by Mr. Ridgway are: *Oroaetus* (p. 1) for *Falco isidori* Des Murs; *Phaeoaetus* (p. 2) for *F. limnaetus* Horsf.; *Morphnar-*

[1] Birds of La Plata. By W. H. Hudson. With twenty-two colored illustrations by H. Gronvold. J. M. Dent & Sons, Ltd., London & Toronto. New York, E. P. Dutton & Co., 1920. 2 Vols., 8vo., pp. i–xviii, 1–244; and i–x, 1–240. Edition limited to 3200 copies, 200 on large paper. Price $15.00 net per set.

[1] Diagnoses of Some New Genera of Birds. By Robert Ridgway. Smithson. Misc. Coll., Vol. 72, No. 4, Publ. 2588. December 6, 1920, pp. 1–4.

chus (p. 2) for *Leucopternus princeps*; *Percnohierax* (p. 2) for *Falco leucorrhous* Q. & G.; *Hapalocrex* (p. 3) for *Rallus flaviventris*; *Linnocrex* (p. 3) for *Porzana cinereiceps* Lawr. and *Thryocrex* (p. 4) for *Corethrura rubra* Scl. & Salv.—W. S.

Murphy on the Peruvian Guana Birds.—In the third of his series of papers[1] on 'The Seacoast and Islands of Peru,' Dr. Robert Cushman Murphy describes his trip from Callao to the Guano Islands. He also outlines the history of the Guano industry and describes its present condition, concluding with a brief account of the several birds which form the great colonies on the islands. Quoting from Dr. F. A. Lucas who visited the islands in 1869, Mr. Murphy states that even at that time they had been swept clear of guano birds and that no sign of the streaming flocks was to be seen. By the close of the nineteenth century the birds had been so reduced that it was hardly thought possible that they could be saved and the industry revived. Happily however during the past twelve years, thanks to an intelligent administration and the expert advice of two foreigners, Dr. Henry O. Forbes and Dr. Robert E. Coker, the wonderful colonies have been restored and a most valuable industry has been placed upon a permanent basis. A large number of excellent illustrations from photographs by the author accompany the account.

In another recent paper[2] Mr. Murphy has described the Zoological garden at Lima, Peru and presented a number of illustrations of the birds and mammals which are there exhibited.—W. S.

Dr. Shufeldt's Bibliography.—The ninth and final instalment of the list of Dr. Shufeldt's published writings[3] has appeared bringing the total number of titles, up to the time of going to press, to 1565. He states, however, that his production of papers is going on as rapidly as ever, which, judging from the bibliography, means from thirty to fifty per year, so that in order to keep the list up to date he proposes to issue the first supplement about March, 1921.—W. S.

Aves in the Zoological Record—1918.—Once more we are indebted to Mr. William Lutley Sclater for the compilation of this invaluable bibliography of ornithology, without which systematic work on birds would be involved in hopeless complications.[4] The titles which he has collected number 937 as against 707 for 1917. A number of titles not available during the past few years on account of war conditions are incorporated here so that the record may eventually be complete. Ober-

[1] The Seacoast and Islands of Peru—III. By Robert Cushman Murphy. Brooklyn Museum Quarterly. October, 1920.

[2] The Zoological Park of Lima, Peru. By Robert Cushman Murphy. Zool. Soc. Bulletin. September, 1920.

[3] Complete List of My Writings with Brief Biographical Notes. By Dr. R. W. Shufeldt. Ninth Instalment. Medical Review of Reviews, September, 1920. pp. 495–498.

[4] Aves [in the Zoological Record]. By W. L. Sclater, M.A. Vol. LV, 1918, pp. 1–75. Printed for the Zoological Society of London; sold at their House in Regent's Park, London, N. W. 8. Price 6s. October, 1920.

holser seems to head the list in the matter of number of publications with 25 titles. The full alphabetical list is followed by a subject index arranged under various headings and a systematic list of new species and genera.—W. S.

Whitman's 'Familiar Studies of Wild Birds.'—This volume[1] is primarily a collection of excellent half-tones of photographs of birds and nests taken by the author—seventy-one in number. The eighty-five pages of text, with the exception of two chapters on 'Notes from the Indiana Sand Dunes' and 'Photography of Birds,' are explanations of the plates with notes on the habits and actions of the birds that were under observation. The species treated are the Cedar Waxwing, Bronzed Grackle, Parkman's Wren, Brewer's Blackbird, Broad-tailed Hummingbird, Common Tern, Yellow Warbler, Mourning Dove, Horned Owl and Kingbird, each of which is pictured in a series of plates, while there are single views of a few others. The western species were studied at Strawberry Valley, Utah.

Mr. Whitman's pictures will prove of especial interest to those who devote themselves to out-door photography. From a scientific standpoint the study of the Broad-tailed Hummingbird is perhaps the most important, particularly the photograph and description of the stubby-billed young, black skinned and nearly naked, with only a few yellow hairs ornamenting their backs. The Grackles feeding by the water's edge are rather unique as bird pictures. We notice one unfortunate slip on page 33, where the technical name of the Rock Wren has in some way been used for Parkman's Wren. The book is exceedingly well gotten up and the plates are well printed.—W. S.

Sclater and Mackworth-Praed on the Birds of the Sudan.—Messrs. W. L. Sclater and C. Mackworth-Praed have been engaged in a critical study of several collections of birds from the Anglo-Egyptian Sudan, which have come into possession of the British Museum—notably those of Mr. A. L. Butler—3100 skins; and of Messrs. A. Chapman and Capt. Lynes, 1600 skins; and that of Major Cuthbert Christy. The results of their studies have been published in four instalments in 'The Ibis' from 1918 to 1920, and now appear as a bulky "separate" of 336 pages.[2]

The attempt has been made to include all species reliably recorded from the region under consideration and some 773 names appear in the list. The comment is wholly technical dealing with relationship, racial varia-

[1] Familiar Studies of Wild Birds—Their Haunts and Habits. By F. N. Whitman. With many photographs by the author. Boston, Richard G. Badgre. The Gorham Press (1920), pp. 1–85, 8vo. Price $3.00.

[2] A List of the Birds of the Anglo-Egyptian Sudan. By W. L. Sclater, M.B.O.U., and C. Mackworth-Praed, M.B.O.U. The Ibis, July, 1918, October, 1918, October, 1919, and October, 1920.

tion, distribution and nomenclature and in many cases all of the species or geographical races of a group are worked out, making the paper of much wider importance. Genera or species which are so monographed are the spotted-breasted Weavers (*Ploceus cucullatus*, etc.), *Estrilda astrild*, *Hypochera*, *Prinia melba*, *Serinus mosambicus*, *Poliospiza gularis*, *Passer griseus*, and its allies, *Motacilla flava*, *Cyanomitra verticalis*, *Anthreptes longmari*, *Laniarius aethiopicus*, *Dryoscoptes gambensis*, *Tschagra senegala*, *Cisticola erythrops*, *Sylvietta*, *Prinia mystacea*, *Pycnonotus* (Etheopean forms), *Phyllastrephus flavicollis*, *Elminia longicauda*, *Riparia longicauda*, *Riparia paludicola*, *Hirunda puella*, *Mesopicus goertae*, *Halcyon malimbicus*, *Eurystomus afer*, *Glareola nuchalis*, *Ptilopachus petrosus*, and *Francolinus clappertoni*. A number of new forms are proposed, most of which have been noticed from time to time in our reviews of 'The Ibis,' but the following occur in the October, 1920, instalment: *Stigmatopelia senegalensis sudanensis* (p. 832), Khartoum; *Turtur afra mearnsi* (p. 836), Meridi; *Ptilopachus petrosus butleri* (p. 842), Buval; and *P. p. ladoensis* (p. 843), Mvolo; all of which are to be credited to the junior author, who is individually responsible for the last part.

We notice that Dr. J. C. Phillips' new Nightjar, *Caprimulgus eleanorae*, described in 'Proceedings Biol. Soc. Washington,' XXVI, 1913, p. 167, and figured in 'The Auk,' 1914, pp. 149–158, is identified with *C. trimaculatus tristigma* Rupp. on the authority of Mr. Butler. Neither of Dr. Phillips' papers, it might be added, appear in the bibliography, while the authors have misspelled the name that he proposed.

This notable contribution to African ornithology is illustrated by a colored plate of skins of *Cisticola* and a map of the Sudan. It should long be our authoritative technical work on the birds of the region.—W. S.

Mathews' 'The Birds of Australia.'[1]—The fourth part of volume VIII, which is now before us, continues the treatment of the flycatchers, covering the genera *Poecilodryas* and *Pachycephala* and their allies. Several new genera are proposed in accordance with the author's extreme ideas upon generic subdivision: *Peneothello* (p. 185), for *Poecilodryas sigillata* DeVis.; *Pleciodryas* (p. 185), for *Megalestes albonotatus* Salv.; *Papualestes* (p. 186), for *Myiolestes cyanus* Salv.; and *Gennaeodryas* (p. 186), for *Eopsaltria placens* Ramsay. There are also several new races of *Pachycephala pectoralis* and one of *P. robusta* described.

The apparent relationship of some of the birds considered in the present part to Timaliine forms allied to *Colluriocincla* is discussed, this case being a very good illustration of the intricate interrelationship of Passerine groups.—W. S.

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[1] The Birds of Australia. By G. M. Mathews. Vol. VIII, No. 4, October 13, 1920. Witherby & Co., 326 High Holborn, London.

Recent Papers by Domaniewski.—A number of ornithological papers by Janusz Domaniewski, some of them dealing with new South American birds, have appeared during recent years in the 'Comptes Rendus de la Societe des Sciences de Varsovie' [Warsaw: Poland], printed in Polish with a French résumé.

In the volume for 1913, is a study of the geographic distribution of the European forms of *Sitta* in which is described *S. europaea sztolcmani* (p. 1042).

In 1915 appeared a description of a new warbler, *Sylvia communis volgensis* (p. 550) and a review of the eastern forms of *Passer montanus* with *P. m. dybowski* (p. 562) described as new.

In 1917 appears the second instalment of 'Materials for an Ornithological Fauna of Poland' the third part of which is in the 1918 volume; 'A Contribution to our Knowledge of Palaearctic Falcons', *F. subbuteo usuriensis* (p. 269) subsp. nov.; 'A Contribution to a Knowledge of the Geographic Forms of *Cerchneis naumanni*,' *C. n. sarmaticus* (p. 1044) subsp. nov.; 'On the Palaearctic Forms of Acanthis,' *A. linaria asiaticus* (p. 1054) subsp. nov. and a description of *Serinus canarius polonicus* (p. 995) subsp. nov.

The 1918 volume contains a review of the forms of *Grallaria* with two new forms, *G. rufula saturata* (p. 474) from San Rafael, Ecuador; and *G. r. taczanowskii* (p. 475) from Cayandeled, Ecuador; 'Notes of the Forms of *Pyriglena*' with descriptions of *P. leuconota hellmayri* (p. 179) from Chulumani, Bolivia and *P. l. marcapatensis* (p. 180) from Huaynapata, valley of the Marcapata; 'On the Geographic Forms of *Turdus viscivorus*, etc' *T. obscurus buturlini* (p. 444) subsp. nov. and 'On the Forms of *Cynchramus schoeniclus*,' *C. s. curvirostris* (p. 745) and *C. s. goplanae* (p. 746) subsp. nov.—W. S.

Recent Papers on Bird Protection.—From 'Bird Notes and News' IX, No. 3, we learn of the deplorable plight of the plumage bill in Parliament, where a few agents of the millinery trade are, through methods of procrastination, defeating the obvious desire not only of their fellow members but of an overwhelming majority of the people of England.

There is also a severe arraignment of wholesale egg collecting aroused by the publicity campaign of the "Museum of Comparative Oology" at Santa Barbara, Calif.

In Bulletin 9 of the "Permanent Wild Life Protection Fund" Mr. Hornady has a report on the progress of the movement to induce land owners to forbid shooting of any kind on their estates. There are now no less than 3,131 such sanctuaries in the United States covering in all a million and a half acres. Oregon leads with over 800,000 acres and yet Oregon in a referendum vote has just declined to preserve the famous Malheur Lake bird reservation and has turned it over for land drainage and speculation. The spring 1920 bulletin of the Illinois Audubon Society is as usual an interesting and well illustrated pamphlet, containing among

other things an account of bird life at Olney by Mr. Robert Ridgway. The 'Bulletin of the American Game Protection Association' has an illustrated paper on attracting ducks and feeding them on protected bodies of water.—W. S.

The Ornithological Journals.

Bird Lore. XXII, No. 5. September-October, 1920.

The Screech Owl. By H. E. Tuttle.—Contains some valuable notes on habits. Decapitates its victims eating the head first and in the opinion of the author sees as well as a cat in the daytime.

The Tragic Story of a Titmouse. By George Roberts.—Valuable account of habits of the Tufted Titmouse.

A Hummingbird Story. By W. F. Smith.—Remarkable nesting of a Ruby-throat on the sliding block of a porch swing.

Mount Mazama Bird Notes. By L. L. Haskin.

The Tree Swallow on Long Island. By J. T. Nichols.—Nesting on the south shore and notes on field identification marks.

Dr. A. A. Allen has a popular account of how birds moult and the educational leaflet by T. Gilbert Pearson treats of the Grackles. Mr. Pearson also has an article on new bird colonies on the Texas coast and Dr. T. S. Palmer has a sketch of the late William Dutcher.

The Condor. XXII, No. 5, September-October, 1920.

The Pink-sided Junco. By M. P. Skinner.—Its life history in the Yellowstode Park.

The Function of Powder Downs in Herons. By Alexander Wetmore.—Confirms a suggestion of Newton and Gadow that these feathers secrete oily matter used in dressing the plumage. Dr. Wetmore's tame heron gave abundant opportunity to study the whole operation at very close quarters. The uropygial oil gland was not used at all by the young bird and it was found to be non-functional until the bird was practically grown.

Notes on a Few Birds of the Grand Canyon, Arizona. By M. H. Lee.

New and Interesting Records of Pribilof Island Birds. By G. Dallas Hanna.—Includes a record of *Limnocryptes gallinula* new to North America, and complete lists of the breeding birds of each of the five islands.

Notes on Some Birds of Interior Alaska. By L. R. Dice.—An annotated list of 86 species observed near Fairbanks and Tanana and on the Kuskokwim River to Bethel.

The Oologist. XXXVII, No. 9, September, 1920.

Dreams. By R. M. Barnes.—An account of the egg collection of the late R. B. Christ.

Migration Notes. By Johnson Neff.—Deals with the Ozark region of Missouri as does another note several pages beyond.

Concerning the Ornithology of the Long Expedition of 1820. By Geo. E. Osterhout.—Curiously enough the writer fails entirely to mention the

man who in all probability was the collector and discoverer of the new birds—Titian Ramsay Peale, the assistant zoologist of the expedition.

The Wilson Bulletin. XXXII, No. 3. September, 1920.

Some interesting Records of Nebraska Birds for the Year 1919. By C. E. Mickel and R. W. Dawson.—Notes on 34 species.

Notes on the Birds of the Fort Leavenworth Reservation, Kansas. By David C. Hilton.—Annotated list of 82 species.

Whip-poor-will Calls. By Dayton Stoner.—An interesting record showing a number of counts of over 300 calls with but few short intervals between the series, and one record of 710 calls with but four intervals. Doubtless many have attempted to make counts while lying in bed but the reviewer's experience with such efforts is that the monotonous repetition of the call invariably produces sleep and the count is not completed.

Birds Observed near Minco, Central Oklahoma—An Addition. By Alexander Wetmore.

The Ibis. (II Series.) II, No. 4. October, 1920.

A Nominal List of the Birds at present known to inhabit Siam. By Count Nils Gyldenstolpe (continued).

A List of the Birds of the Anglo-Egyptian Sudan. (concluded.) By W. L. Sclater and C. Mackworth-Praed.

A Contribution to the Study of Nesting Birds. By Collingwood Ingram.—This is a most important paper full of data and suggestion and should be read by everyone interested in the development of nestling birds and the true significance of their plumage and structural characters. Down feathers are classified with more accuracy than in most works on plumage and the extent of feathering in various groups of birds at hatching is discussed. The author believes that the downy covering of Passerine birds is of real service to the species possessing it and not a "functionless ancestral inheritance," and in this we are inclined to agree with him. He looks upon it as obliterative in function, and considers that its absence in birds bred in dark cavities is simply due to the lack of necessity for obliterative markings under such circumstances. He also points out that where the family of young is large and the individuals crowded closely together the down is for the most part lost except on the head, which is the only exposed part of the bird. The case of naked young in open nests he confesses is "somewhat difficult to explain," but he makes the suggestion that the dark color of the skin of the nestling, in many of such species, may serve to partly camouflage them and further that they may be more continuously brooded by the parents.

There is discussion also of the development of the flange of the gape, the "egg tooth," the tubular nostrils of the Goatsucker etc., and a table of the development of down in most of the British species of Passerine and Picarian birds.

Notes on the Birds of North-east Chihli. By J. D. D. LaTouche. Part II.

Some preliminary remarks on the Altitude of the Migratory Flight of Birds, with special reference to the Palaearctic Region. By Col. R. Meinertzhagen,—A notable contribution to this subject with a valuable collection of data obtained from aviators and other sources. His conclusions are that birds rarely occur in migration at an altitude greater than 5000 feet and that the bulk of the flight is conducted below 3000 feet. Incidentally he states his view that birds do not rely to any large extent on land marks to guide them on migration. In this we heartily agree.

British Birds. XIV, No. 4. September 1, 1920.

Notes on the Breeding Habits of the Little Tern. By Thomas Lewis.—With excellent photographic illustrations of nesting behaviour.

The Law of Territory. By J. M. Dewar.

British Birds. XIV, No. 5. October 1, 1920.

The Haunt of the Black-tailed Godwit. By E. L. Turner.—With admirable illustrations from photographs.

Notes on the Nesting of the Nuthatch. By A. H. M. Cox.—Notes the habit of breaking off fresh leaves from twigs which concealed the nest hole from view and of plastering up the hole to suitable dimensions. A count of the pieces of bark etc. carried in for nest construction showed over 10,000.

Some Notes on Diving Ducks. By Charles E. Alford.

The Sale of the Duchess of Portland's Museum in 1786. By H. S. Gladstone.

British Birds. XIV, No. 6. November 1, 1920.

The Black Tern. By E. L. Turner—Beautifully illustrated account of nesting.

Avicultural Magazine. XI, No. 10. October, 1920.

The New Collection at Chateau de Cleres. By H. D. Astley.—M. Delacour is building up a new collection to replace his famous aviary destroyed during the war.

Avicultural Magazine. XI, No. 11. November, 1920.

Notes on the London Zoological Society's Indian Collection. By E. W. Harper—About 40 species of birds received in a shipment including a *Psaroglossa spiloptera*.

The Emu. XX, Part 1. July, 1920.

Plumage Changes of the Nankeen Night Heron (*Nycticorax caledonicus*); By C. F. Cole.—The plumages would be better understood if the nomenclature now generally adopted were used.

With Camera and Field Glasses in Northwest Victoria. By L. G. Chandler.—Illustrated by some beautiful half-tones.

Australian Species of Tubinares (Petrels and Albatrosses). By W. B. Alexander.—The first instalment of a valuable paper, in which we are gratified to see that the author makes use of subgenera instead of following the extreme generic subdivision advocated by Mathews. (continued in October number).

Penguins. By R. Stuart-Sutherland. (continued in October number).

Aboriginal Names of Birds. By E. S. Sorensen.

Discovery and Early History and Notes on the Lyre-Bird (*Menura superba*).

The Emu. XX, Part 2. October, 1920.

Notes on Additions to the "H. L. White Collection." By A. J. Campbell.

The Birds of Sydney. By A. S. Le Souëf.

Food Pellets of Kingfishers. By Reg. Hays.—With photographs of contents.

Breeding of Bustards. By A. H. Chisholm.

There are some interesting photographs of *Podargus* and in both this and the preceding number, notices and comments on Mathews' latest 'List' of Australian birds.

The South Australian Ornithologist. V, Part 3, July 1, 1920.

The Birds of Rivers Murray and Darling and the District of Wentworth, Part II. By A. Chenery and A. M. Morgan.

Australia's Mockingbird. By Edwin Ashby.—The calls of the Victorian Lyre-Bird (*Menurus novae-hollandiae.*)

El Hornero. II, No. 1. July, 1920. [In Spanish.]

The Penguins of the Coasts and Islands of the Argentine seas. By Roberto Dabbene.

List of the Birds of Uruguay. By Juan Tremoleras.—254 species listed with a few recorded localities for each.

Short Notes on Antarctic Birds. By A. G. Bennett.—On the birds observed on the Shetland del Sur Islas and the Orcadas del Sur in 1913–14, 1914–15 and 1917–19 illustrated by half-tones from photographs.

The Young of the Stork (*Euxinura maguari*). By Miguel Fernandez.

Notes on Mallophaga of Argentine Birds. By F. Lahille.

On Fossil Birds of the Republic of Argentine. By Lucas Kraghevich.

Revue Francaise d'Ornithologie. No. 138. October 7, 1920. [n French.]

Guide for the Amtaeur Ornithologist Visiting Africa. By Dr. Millet-Horsin.

Le Gerfaut. X, No. 3. 1920. [In French.]

Remarks on the Life History of the Cuckoo. By L. Coopman.

Birds of Prey Useful or Injurious. By Ch. Groud.

Observations on the Song of Some Thrushes. By A. Mercier.—Deals with the sommon European species.

Ornithologische Monatsberichte. Vol. 28, No. 7–8, July-August, 1920. [In German.]

The Forms of Bird Calls. By H. Stadtler and C. Schmitt.

Two New Weavers from Middle Africa. By M. Sassi.—*Ploceus* (*Melanopteryx*) *holomelas* (p. 81) *P.* (*M.*) *aureonucha* (p. 81) both from Mawambi.

Ornithologische Monatsberichte. Vol. 28, No. 9-10, September-October, 1920.

Feining of Wild Doves (*Columba palumbus*) for the protection of their Young. By F. Sellbach.

A New Crested Lark from French Guinea. By H. Grote.—*Helicorys modesta nigrita* (p. 98).

Ornithologische Monatsberichte. 1917 and 1918 are at last available for notice. The former volume contains numerous observations on the birds of northern France; discussion on the validity of *Fulica stenoleuca* Peckelhoff as distinct from *F. atra*, and an historical article on Reichenbach's 'Natural History of Birds' by A. Jacobi. The following new forms are described by O. Neumann from New Guinea: *Chaetura novaeguineae mamberana* (p. 153); *Edoliisoma schisticeps reichenowi* (p. 153); *E. s. moszkowskii* (p. 154); *E. s. bernsteini* (p. 154); *Aplonis cantorides longipennis* (p. 155).

In the 1918 volume there are additional papers on French and Russian birds; discussion on the forms of the European Creepers (*Certhia*); the sexual characters of *Bombicilla garrula* by F. Tischler and on the Corvidae of West Russia. J. Gengler describes as new *Corvus corax dardaniensis* (p. 110) from Macedonia, in the September–October issue.

Journal für Ornithologie. Vol. 65, No. 1. January, 1917. [In German.]

An Ornithological Bibliography of Pommerania. By F. Koski. (completed in April.)

Bird Migration in the Western Sahara. By H. Geyer von Schweppenburg.

The Different Methods of Recording Bird Notes. By H. Hoffmann.

Observations of the Birds of Pottsdam and the Arrival in Spring. By H. Anel.

Some African and other birds are described in the proceedings of the Ornithologisal Society which may date from here.

Journal für Ornithologie. Vol. 65, No. 2. April, 1917.

The Belief in the Hibernation of Birds and Its Origin. By A. Wesemuller.

Journal für Ornithologie "Sonderheft," April, 1917.

Bird Migration in Helgoland in the Years 1912 and 1913. By P. Kruss.—Daily lists with direction and strength of wind and a list of 71 species observed.

Journal für Ornithologie, Vol. 65, No. 3. July, 1917.

In the Land of the Tuareg. (Eastern Sahara.) By H. Geyer von Schweppenburg. (continued in April, 1918.)

Bird Observations at Rossiten, during 1916. By H. Thienemann.

New Birds Described by Reichnow. Page 391: *Turdus pondoensis*, Pondo-land, S. E. Africa; *Dryonastes tsinlingensis*, Schensi, E. China; *Bradypterus usambarae*, Usambara, E. Africa; *Calamocichla palustris*,

Massailand; *Cinnicerthia paramosa*, Ecuador, "Paramos Grenze"; *Turdinus tanganjicae*, Tanganika. Page 392: *Ploceus quilimanensis*, S. Mozambique; *P. epipolius*, Kilwa, E. Africa; *P. pondoensis*, Pondoland.

Journal für Ornithologie, Vol. 65, No. 4. October, 1917.

New Contributions to Our Knowledge of the Birds of the Province of Posen. By J. Hammling (continued in January and April, 1918).

Remarks on Some Turkestan Birds. By P. Kollibay. (continued.)

On the Song etc., of the Swift. By B. Hoffmann.

The Geographical Races of *Turdus viscivorus* L. By F. von Lucanus.—*T. v. jubilaeus* (p. 511) susp. nov. Caucasus.

New Species described by Reichenow. *Gerygone stictilaema* (p. 514) and *Chaetura burgersi* (p. 514) both from Sepik, N. Guinea. Many of these descriptions of Dr. Reichenow are very unsatisfactory, being exceedingly brief with no mention of a type specimen.

Journal für Ornithologie. "Sonderheft," 1918.

On Bird-banding Experiments during 1913 to 1916 and Bird Migration on Helogoland, 1914–1917.

Journal für Ornithologie. Vol. 66, No. 1. January, 1918.

New Species of African Birds Described from 1905 to 1914. By A. Reichenow.—A list of 979 species and genera with reference to place of publication.

Journal für Ornithologie. Vol. 66, N. 2, April, 1918.

Contributions to the Ornithology of Macedonia. By R. Schlegel.

Queries and Problems in Bird Song. By C. Schmitt and H. Stadler.—The Nightingale, Cuckoo and Titmouse.

Journal für Ornithologie. Vol. 66, No. 3. July, 1918.

On the Ornithology of Northeast France. By W. Bachmeister and O. Kleinschmidt.

Two Years of Field Ornithology in the Rokitno Swamps [Western Russia]. By W. Grafsmann.

Journal für Ornithologie. Vol. 66, No. 4, October, 1918.

Bird Observations at Rossitten, 1917. By H. Thienemann.

Review of the Birds of Kurland. By A. Reichenow.

The Systematic Position of *Urocynchramus pylzovi* Przev. By J. Domaniewski.—A new family Urocynchramidae proposed for it as it differs materially from all of the Fringillidae, in which family it has previously been included.

Descriptions of New Birds by Reichenow.—Page 437: *Dendropicos obsoletus camerunensis*, Kamerun; *D. o. kirensis*, Kir, Africa; *Sylvietta zedlitzi*, South Kavirondo, Page 438, *S. ladoensis*, Lado; *Serinus dorsostriatus intensitinctus*, Massailand; *S. icterus songeae*, Songea; *Poliospiza angolensis deserti*, Damaraland; *Phonygammus neumanni*, Lordberg, Sepik; Page 439: *Trichoglossus aberrans*, New Guinea.

Journal für Ornithologie. "Reichenow Festschrift." 1917. Vol. 65, pt. II. Published in commemoration of the seventieth birthday of Anton

Reichenow; comprising a sketch of the ornithologist and twenty-seven papers by members of the German Ornithological Society. Among these may be mentioned the following:

Important Observations on the Paraguayan Forest Region. By Hans von Berlepsch.

The Ornithological Position of the Tuareg Mountains. By H. Geyer von Schweppenburg.

The Biology and Distribution of our Species of Certhia. By W. Hagen.

The Influence of Season, Age and Sex upon Moult. By O. Heinroth.

On the Hygienic and Economic Value of Birds. By C. R. Hennicke.

The Specific Validity, Winter Plumage and Melanism of Uria mandtii. By A. Jacobi.

The Owls of Egypt. By A. Koenig.

The Numerical Relation of the sexes in the Bird World. By F. von Lucanus.

On the Avifauna of the Lower Senegal Country. By O. Neumann.—With a list of 293 species.

A few Remarks on the Avifauna of Nova Zembla. By H. Schalow.

Do Migrating Birds Require Preparation for their Flights? By J. Thienemann.—Dates of arrival and remarks on the condition of the stomach and crop.

The Plumage of the Pine Crossbill (*Loxia curvirostra*), By F. Tischler. List of birds observed in the Sahara Country. By O. Graf von Zedlitz. Comment on *Turdus viscivorus jubilaeus* which here appears as "new" but with a reprint of Lucanus' earlier paper.

Aquila. 1915. XXII. [In Hungarian and German.]

(These annual numbers are full of articles dealing with the migration economic value habits and distribution of Hungarian birds with many local lists. In the following notice only the more important papers or those of more general interest are mentioned.)

Histology of the Skin of Birds. By E. Greschik.

On the Structure of the Spleen in Birds. By E. Greschik.

Bird-banding by the Hungarian Ornithological Society in 1914 and 1915. By J. Schenk.

Materials for an Avifauna of Serbia. By D. Lintea. (concluded in 1916.)

On Fossil Remains of *Bubo maximus* and *Syrrhaptes paradoxus*. By K. Lambrecht.

Aquila. 1916. XXIII.

Bibliography of Palaeo-ornithology to the end of 1916. By K. Lambrecht.

Biography of Otto Finch and others.

Bibliography of Hungarian Ornithology 1915–1916. By T. Csorgey.

Aquila. 1917. XXIV.

On the Digestive Canal of *Androglossa aestiva*. By E. Greschik.

Origin and Development of the European Bird Fauna. By K. Lambrecht.

Aquila. 1918. XXV.

The Morphology of the Tongue of Birds. By J. Greschik.

A Nomenclature of the Birds of the Kingdom of Hungary. By Stefan Chernel.—410 species listed but the nomenclature does not follow any code, the 10th or 12th edition of Linnaeus being cited for a species according to which will cause the least change in the names.

On the Digestive Canal of *Regulus cristatus*. By E. Greschik.

Aquila. 1919. XXVI. *

International Bird Protection.—The Paris convention of 1902.

Positive Data on the Food of Our Birds. By E. Csiki—Elaborate tables of food of the Magpie.

Ornithological Articles in Other Journals.[1]

Soper, J. Dewey. Nesting of the Ruby-crowned Kinglet at Guelph, Ontario.—A valuable account of the species. (Canadian Field Naturalist, April, 1920.)

Townsend, Charles W. Notes on the Summer Birds of the Gaspe Peninsula, Provence of Quebec. (*Ibid.*)

Clarke, W. Eagle. The Attempted Breeding of the Bee-Eater (*Merops apiaster*) in Midlothian. (Scottish Naturalist, September–October, 1920.)

Rintoul, L. J. and Baxter, E. V. The Shoveller as a Scottish Breeding Species. (*Ibid.*)

Adams, C. C., and others. Plants and Animals of Mount Marcy, New York. Part II. (Ecology, 1, July 1920.)—Bird data mostly from Eaton's 'Birds of New York.'

Allen, Elsa G. The Eggs of Birds. (American Forestry, 1920.)

Ruttledge, R. F. Some Notes on the Habits of the Wren. (Irish Naturalist, November, 1920).—Sings in every month of the year and sings on the wing.

Illidge, R. Wrens of the Brisbane District. (Queensland Naturalist, II, No. 3).

Chisholm, A. H. Courtship Among Birds. (*Ibid*).—Comments on Lankester's statements.

Baker, E. C. Stuart. Notes on Two Collections of Birds from Seistan. (Records of the Indian Museum, XVII, Part II.)

Wait, W. E. Occurrence of the White Wagtail in Ceylon. (Spolia Zeylanica, XI, Part 42.)

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* The above bring our notices of the German ornithological journals, which were not accessible during the war, up to date.

Wait, W. E. The Picarian Birds and Parrots of Ceylon. (*Ibid*).—Description, distribution and habits with keys for identification.

Wait, W. E. The Migration of Birds and Ceylon Migrants. (*Ibid*).—General part follows Eagle Clark, valuable local data.

Donald, C. H. The Birds of Prey of the Punjab. Part IV. (Journal of the Bombay Nat. Hist. Soc., XXVI, 1920. and XXVII).

Whistler, Hugh. Further Notes on Birds about Simla. (*Ibid.* XXVII, 1920—90 species.

Ludlow, F. Notes on the Nidification of Certain Birds of Ladak. (*Ibid*).

Houssay, M. F. On a morphological Index of Flight in Birds. (Bull. Mus. Nat. Hist., 1919, p. 552–558.) [In French.]

Paris, P. Researches on the Life History of the Birds of the Vineyards. (Annales des Service des Epiphytes, V, 1918).—Habits and economic position of the various species. [In French.]

Giglio-Tos, E. List of the New Forms or Subspecies of Italian Birds Described up to December 31, 1915. (Boll. Mus. Zool. Anat. Comp. Torino, XXXIII, No. 727, October 15, 18, 19.) [In Italian].

Salvadori, T. On *Podiceps infuscatus* (*Ibid.* XXX, No. 694, March 4, 1915). [In Italian.]

Salvadori, T. An Eagle of Northern Africa. *Aquila occidentalis* Brehm. (*Ibid*, XXX, No. 700. April, 1915). [In Italian.]

Hess, Albert. Recent Results of Swiss Bird-banding. (Zoolog Beobachter, LXI, 1920.) [In German.]

Gengler, J. Field Notes on the Ornithology of Hungary and the Seven Mountains. (Archiv. fur Naturg esch, LXXXIV, abt. A., heft 12, 1920.) [In German.]

Sunnen, M. Ornithology of the Raven Family. (Festschrift zur Feier des 25 jahr. Bestehen. Luxemburg Soc. Nat. Hist. 1915.) [In German.]

Lonnberg, Einar. Hybrid Gulls. (Arkïv. for Zoologi, XII, No. 7. 1919.) [In English.]

Lonnberg, Einar. *Loxia hordeacea* Linn. 1758, is identical with *Euplectes flammiceps* Sw. 1837. (*Ibid.* No. 3). [In English.]

Rendahl, H. Notes on a Collection of Birds from Panama, Costa Rica and Nicaragua. (*Ibid.* No. 8). [In English.]—Collection of 199 species made in 1882–83 by Dr. C. Bovallins. *Rynchops melanura intermedia* (p. 12) subsp. nov. San Juan del Norte, Nicaragua.

Antony, Mythilde. On the Saliva glands of Birds. (Zoolog. Jahrsbhcher, Abst. Anat., 41, 1919.) [In German.]

Gengler, J. A Contribution to the Ornithology of Belgium. (*Ibid* heft 10, 1920). [In German.]

Killermann, S. The Plumage of the Paradise Bird. (Naturw. Wochenschrift, XVI, 1917.) [In German.]

Freund, L. The Germ-glands and Castration in Male Birds. (*Ibid*). [In German.]—Extensive bibliography of both subjects.

Wesemuller, A. The Migration of Our Sea Birds. (*Ibid.*) [In German.]

Sokolowsky, A. On the Body Structure and Actions of the Toucans. (Natur. heft 15–16, 1918). [In German.]

Schmidt, W. J. The Yellow Color of the Mouth in Young Birds. (Verhandl. d. Naturh. Ver. Preuss, Rheinld. u. Westfalens, 75, jahrg., 1918. pp. 169–188.)

Sydanheimo, Martti. Ornithological Notes from Tunsulassa. (Meddelander of Soc. pro Fauna et Flora Fennica, XLV, pp. 196–204.) [In Finnish.]—Migration data on 23 species, 1913 to 1919.

Baillet, M. A Physiological and Literary Review of the Voice in Animals. (Actes de l' Academie Nat. Sci. de Bordeaux, 4 ser. II.) [In French.]

Additional Publications Received.—Abstract Proceedings of the Linnaean Society of New York. No. 32, 1919–1920.

Avicultural Magazine. XI, No. 12, December, 1920.

Bird-Lore. XXII, No. 6, November–December, 1920.

British Birds. XIV, No. 7, December, 1920.

Bulletin British Ornithological Club. CCLIII and CCLIV.

Bulletin Charleston Museum. XVI, Nos. 6–7, October–November, 1920.

Bulletin Essex County Ornithologists' Club. December, 1920.

Condor, The. XXII, No. 6, November–December, 1920.

Gull, The. II, No. 10, October 1920.

Natural History. XX, No. 4, September–October, 1920.

Oiseau, L'. Nos. 9 and 10, September and October, 1920.

Ornithologische Beobachter. XVIII, No. 1, October, 1920.

Proceedings Academy of Natural Sciences, Philadelphia. LXXII, part II, May–October, 1920.

Revue Francaise d'Ornithologie. No. 139, November, 1920.

Scottish Naturalist, The. Nos. 107–108, November–December, 1920.

South Australian Ornithologist. V, part 4, October, 1920.

Zoologica. II, No. II. Eclipse Plumage in Domestic Fowl. By Lee S. Crandall.

CORRESPONDENCE

Baker's Life of Pleistocene.

EDITOR OF 'THE AUK':

In the last number of 'The Auk' there appears a note by Dr. R. W. Shufeldt, in reference to my recently published 'Life of the Pleistocene,' which calls for comment on my part. To the main criticisms of Dr. Shufeldt—as to the wisdom of omitting the references to the life of this period from areas outside of the ice sheet,—I take no exception, this being a matter of personal opinion. Dr. Shufeldt thinks I should have included them; I think I should not. The statement to which I object, and I think rightly, is this sentence which closes Dr. Shufeldt's note. "This omission is to be greatly deplored, for in such a formal work as the one here considered, the ignoring of so important a group of vertebrates as Pleistocene birds—the rarest of all fossil vertebrates—casts not a little doubt upon the thoroughness of still other subjects treated in this volume."

Some weeks ago Dr. Shufeldt, in acknowledging a copy sent to him by the author, brought up these points, and some correspondence ensued as to the reasons for omitting this, as well as other groups, from consideration. I then stated the reasons, and I had thought the matter quite well understood between us, and simply a difference of opinion. For the benefit of those who may not have access to the volume I will state my reasons for omitting all (not simply the birds, as Dr. Shufeldt's note would imply) of the records of life from the area indicated by the criticism. The subtitle to the volume reads "*as recorded in the depoits laid down by the great ice sheets.*" The part of the introduction referring to this limitation has already been stated by Dr. Shufeldt.

This limitation of the field was made advisedly before the final work was undertaken and the omissions were not due to lack of thoroughness, as the criticism would imply. The records cited by Dr. Shufeldt from Texas, North Carolina, Maryland, Nebraska, New Jersey, etc., are outside of drift deposits and cannot be used for the reasons stated.

Many of these, also, are not in Pleistocene deposits but are listed as Pliocene species, and some are from deposits that are quite problematical, and may be late Pliocene. My purpose was to record so far as possible all information available concerning life that had some definite relation to one or more of the continental ice sheets. For this purpose many thousand volumes were consulted and laboriously searched, the index being ignored because many references to life were not indexed in some of these works. It is confidently believed that all important references have been included. The references to the works of Cope, Marsh, Shufeldt, and others, have been omitted, except where they contained records of material from glaciated regions. Four such works of Cope, and a fifth

in connection with another author, are listed in my bibliography on pages 412–413.

On page 373 of my work reference is made to the Vero deposits of Florida, and Dr. Shufeldt criticises the omission of his species of birds. This reference had to do only with Man's presence in the Pleistocene period and only the mammals were listed, because these only can be used to determine the probable age of such deposits. A careful reading of this section will convince any unprejudiced person of this fact.

Objection is made to the absence of records from the Pacific Coast. If a map of the glacial period be consulted it will be seen that the ice sheet extended, in the United States, only into parts of northern Idaho and Washington. To the north it extended through British America and Alaska. A reference to Pacific Coast deposits and life is made on p. 279. So far as the writer is aware little is known concerning Pleistocene life from this territory and some records from Alaska are outside of the glaciated area.

As far as the birds are concerned the writer has found no records of their remains from glacial deposits within the region of the drift sheets, excepting the one listed from Chicago and identified by Dr. Shufeldt. The absence of the remains of this class of vertebrates from the interglacial deposits indicates their rarity in Pleistocene deposits, as suggested by Dr. Shufeldt.

No apology is made by the author for the arbitrary limits set upon the area considered in the volume in question. The vertebrates of the outlying territory have been well listed by Osborn, Matthews, Shufeldt and others, and it seemed that something should be done to bring together the scattered literature relating to the territory immediately affected by the glacial ice sheets. This the author has tried to do to the best of his ability, and he wishes to make it clearly understood that this limit of area was purposely and advisedly made, that it was not due to any omissions or lack of thoroughness in preparing the work, and that as far as he has heard from many of the leading geologists and glaciologists of America, no objections such as Dr. Shufeldt suggests have been received. That there will be differences of opinion regarding interpretations made in the work is to be expected, but the writer believed that the clear statement on page iv of the introduction, in which the reasons for the limitation of the territory were carefully stated, would prevent any misconceptions or criticisms such as Dr. Shufeldt has made. The Doctor's work on fossil birds is well known to me and greatly respected and no thought of slighting or purposely ignoring his splendid work was intended in the Pleistocene volume.

FRANK COLLINS BAKER

University of Illinois, Urbana, Ill.
October 21, 1920.

NOTES AND NEWS

WALTER FAXON, a former Fellow of the American Ornithologists' Union, died at Lexington, Mass., on August 10, 1920. He was a son of Elisha and Hannah Mann Faxon, and was born in Jamaica Plain, Mass., on February 4, 1848. He spent his boyhood in Jamaica Plain, now a part of Boston, and attended the local public schools. From Harvard University he received the degrees A. B. 1871, S. B. 1872, and Sc.D. 1879. From 1874 until the time of his death he was Curator of the Invertebrate Department of the Museum of Comparative Zoology at Cambridge. He was elected to Associate Membership in the American Ornithologists' Union in 1891, and was advanced to an Active Member in 1896. He was a Fellow from 1901, when that form of membership was inaugurated, until 1904.

Walter Faxon was the youngest of a family of seven children; he had three brothers and three sisters. When the father died in 1855, the oldest son, Edwin, took his father's place in relation to the two youngest boys, Charles and Walter, the last twenty-five years his junior. His influence in directing the youthful minds of his brothers to the study of Natural History is shown in the choice of their professions; Walter became a Zoölogist and Charles a Botanist.

After leaving home for college, Walter Faxon did not return to Jamaica Plain; upon graduation he lived for a while in one of the college dormitories and then moved into the country on the western side of Boston where he lived chiefly in the towns of Arlington and Lexington. In his young manhood he made an extensive camping tour in the southern states, but he never traveled west of the Mississippi river; he visited England twice, the last time in 1900.

Walter Faxon's interest in birds began in his boyhood and remained undiminished throughout his life, a period of study covering nearly sixty years. His long experience in the field and his alertness of eye, ear and mind, as well as his scrupulous care to avoid error, combined to make him one of the best equipped and accurate of field ornithologists,—the identification of a bird by him was never questioned.

Mr. Faxon (he did not use the title pertaining to his doctor's degree) possessed also a wide knowledge of the history of Ornithology, and during the last thirty years he acquired an extensive and valuable collection of Wilsoniana, which he bequeathed to the Museum of Comparative Zoölogy. The most important contributions which Mr. Faxon made to the literature of Ornithology were two papers on Brewster's Warbler, (Mem. Mus. Comp. Zoöl., Vol. XL. Nos. 2 & 6, Jan., 1911 & Aug., 1913.) in the second one of which he demonstrated the hybrid origin of this bird. These papers were written with the pains-taking care in the choice of words and phraseology which distinguished everything Mr. Faxon wrote.

In his writings, however, he displayed the more formal side of his nature, and only those men who knew Mr. Faxon personally are aware of the delightful side of his character which he showed to his intimate friends He was not free from the diffidence often associated with sensitive natures, and his diffidence added a little stiffness sometimes to his dignity on formal occasions, but at his home or in the field with one or two intimates, he was the happiest of companions, witty, often jovial, brilliant in conversation on a wide range of subjects. He was a charming host, and those who have been his guests will always remember the bright smile which illumined his face in welcome, and the twinkle in his eyes as he told some humorous story.

Walter Faxon was a scholar whose education rested on the firm foundation of the classics. A life of comparative leisure enabled him to make the best use of his erudite tastes and to accumulate a vast store of knowledge. In addition to the Natural Sciences, his field of interest included English Literature, notably Shakespeare, of whose work his knowledge was profound. He was also very fond of music.

Many men came to Mr. Faxon for counsel, sure of receiving careful consideration, sound advice, and intelligent, friendly sympathy, and many are grateful to him for awakening a new interest in their work and for stimulating them to better efforts.

To us who were near Mr. Faxon during the last year of his life, when he walked in the shadow of death, his quiet, patient courage will always be an example,—a courage which never gave way even when he drew his last breath. He died suddenly, as he often expressed the hope that he would do, and as two of his brothers died. He leaves behind many who respected him, many who admired him and a few who loved him deeply

W. M. T.

Professor John Macoun, M. A., F. L. S., F. R. S. C., the dean of Canadian naturalists, died at his home in Sidney, Vancouver Island, B. C., on July 18, 1920, aged a little over eighty-eight years. He had been naturalist of the Geological Survey of Canada since 1882, and resided in Ottawa until about eight years ago, when failing health made it necessary to remove to the milder climate of British Columbia. He remaided actively at work, however, and up to the last months of his life was an active botanist, specializing on the mosses and fungi of British Columbia. The work of Professor John Macoun and his son, the late James M. Macoun, C. M. G., F. L. S., recently botanist and chief of the biological division, Geological Survey of Canada, built the National Herbarium of Canada from nothing up to over 100,000 specimens.

The late Professor Macoun, while best known as a botanist, was one of the old school of naturalists who took the whole field of natural science for his province. In addition to his botanical work, he gathered a collection of several thousand birds and about 2,000 mammals, with many

invertebrates and fishes, from all parts of Canada, He was an indefatigable worker and a man of indomitable will, as shown by the fact that when over eighty years of age, having suffered a partial stroke of paralysis which left his right side helpless for many months, he learned to write with his left hand and carried on his voluminous correspondence until his death.

Professor Macoun was elected an Associate of the American Ornithologists' Union in 1883. As an ornithologist his best known work was the 'Catalogue of Canadian Birds,' 1900–1904.

Professor Macoun was born dear Belfast, Ireland, April 17, 1832, and came to Canada in 1850. For a number of years he taught school, retiring in 1882 when professor of natural sciences at Albert College, Belleville, Ontario, to become naturalist of the Geological Survey. Previous to this he had done more or less work for the government, joining Sir Sanford Fleming's exploratory party in 1872 at Port Arthur, and crossing the plains. From Edmonton he went with a small party through the Peace River Pass to the coast. Three years later he again crossed the continent, travelling from the Pacific coast eastward. In 1879, 1880, and 1881, he exhaustively explored the little known parts of the great northwest country, and his capable reports had a great deal to do with making known the immense potential resources of that vast territory, which is now the great grain producing region of Canada. At later periods, he worked in every province of Canada, from the Maritime Provinces to the Yukon.

In 1862 Professor Macoun married Miss Ellen Tyrrell, who survives him. He is also survived by his son, Mr. W. T. Macoun, Dominion Horticulturist, Ottawa, and three daughters. His eldest son, Mr. James M. Macoun, who was his father's assistant, died at Ottawa last January.

R. M. Anderson

Nelson R. Wood, died suddenly in Washington on November 8, 1920, For many years he was employed in the taxidermical department of the United States National Museum and as a scientific and artistic taxidermist had not an equal in this country. Birds were ever the special object of his skill, and to the mounting of them for museum exhibition the greater part of his life was devoted. While a consummate master with birds of all groups, certain families were his especial favorites, such as the game birds, pigeons and fowls. Much of his work is on exhibition in the cases at the United States National Museum, and will probably be viewed for many generations to come.

Mr. Wood gained his knowledge of the normal attitudes of birds in nature through his life-long study of them in their various habitats. More than this—he had skillfully mastered the imitation of the notes and calls of a large number of birds of many species, both wild and domesticated.—R. W. S.

THE EMERSON COLLECTION OF BIRD SKINS.—Readers of 'The Auk' will be interested and pleased to learn that the California Academy of Sciences has recently acquired the entire W. Otto Emerson collection of bird skins, which numbers about 5500 specimens.

This collection is doubtless one of the most complete and valuable local collections ever made in California. Mr. Emerson began observing, collecting, and studying the birds of California some forty years ago He very naturally gave most attention to the birds about his home Palm Cottage, near Hayward, Alameda County, Calif., but his numerous collecting trips, oft repeated, into every part of Alameda County.—the fields, the bay shore and salt marshes, the creek bottoms and ponds, the orchards, vineyards and pastures, and the canyons, hills and mountains, gave him an acquaintance with the birds of that part of California probably more intimate than that possessed by any other ornithologist. The collection is therefore particularly complete as to that territory. Many species are represented by very full series of specimens showing the differences in plumage for age, sex, and season. The series of sparrows grosbeaks and warblers are very full. There are also several "record specimens" for California, among which may be mentioned the Redstart, Slate-colored Junco, Black and White Warbler, Black-throated Blue Warbler, White-throated Sparrow, and Harris's Sparrow.

The late Dr. James G. Cooper was for several years a near neighbor of Mr. Emerson's at Hayward, and at his death in 1902, a number of his manuscripts and notebooks were secured by Mr. Emerson, who has turned them all over to the Academy. Among these are the original manuscript of Cooper's 'California Ornithology,' 1870, and that of the 'Birds of Washington Territory,' 1860–65. The note-books or diaries date back to 1853.

It will be recalled that the J. and J. W. Mailliard collection of bird skins, nests and eggs, numbering some 25,000 specimens, was by them donated to the California Academy of Sciences in 1918. Before acquiring the Mailliard collection, the Academy was strongest in water birds. The Mailliard and Emerson additions now give the Academy a good working series of the land birds of North America.

The Academy has been able to acquire the Emerson collection of specimens and manuscripts through the generosity of two of its many public-spirited members.

Although Mr. Emerson has practically ceased collecting, his interest in bird-life continues undiminished and, with note-book and camera he continues to record his daily observations on the birds which he sees.

ERRATUM. In the notice of the meeting of the British Ornithologists' Union in the October 'Auk' an unfortunate misstatement occurs in connection with the appointment of a committee to revise the Check-List and keep it up to date. Such a committee *was* appointed. It was the proposal to place these duties on the General Committee that was rejected.

THE exhibit of ornithological art held in connection with the 38th Stated Meeting of the American Ornithologists' Union was a great success and was pronounced by various officials of the Library of Congress, in which it was held, to be the finest exhibit ever shown in the Library.

Officials of the Library were most helpful in arranging for the installation of the pictures; they also served a dinner at a special hour for the benefit of members of the Union, after which the exhibit was viewed, and the courtesy of a special inspection of the Library building and the system of handling books was extended.

In general the exhibit consisted of the work of American contributors but by the kindness of Col. Anthony R. Kuser specimens of the work of G. E. Lodge and H. Gronvold were shown, together with reproductions of pictures by these and other artists and photographers who prepared illustrations for the pheasant monograph. Etchings by George M. Benson were loaned by the Library of Congress, water colors by Miss Mary E. Eaton by the Church and Dwight Co., of New York City, and various original drawings, paintings and photographs by the Biological Survey.

Chiefly, however, the success of the exhibit was due to the cordial coöperation of the individual contributors, who assumed the risk involved in the shipment of their pictures to and from Washington, and the burden of packing and defraying expense of the incoming parcels. The total valuation of the pictures ran into many thousands of dollars. Generally speaking, each contributor was represented by six pictures, the photographs in practically every case being enlarged to 11 by 14 inches or larger.

A wide variety of birds were illustrated, the total number of 'Check-List' species being more than 180 and of foreign species 50. In general the more common birds were illustrated most frequently, pictures of the Robin being submitted by six exhibitors, of the Brown Thrasher by five, and of the Bluebird, Red-eyed Vireo, Purple Grackle, Great Horned Owl, Osprey and Wood Duck by four each.

The artists represented were: W. T. Allan, Frank W. Benson, Frank Bond, Courtenay Brandreth, Allan Cyril Brooks, H. C. Denslow, Mary Eaton, Louis Agassiz Fuertes, Carl F. Gronemann, Charles E. Heil, Frank C. Hennesey, Henry Hintermeister, Robert Bruce Horsfall, Edwin Richard Kalmbach, Charles Robert Knight, Karl Plath, Earl Lincoln Poole, Robert Ridgway, John Livzey Ridgway, Ernest Evan Thompson Seton, Edwin Sheppard, Althea Rosina Sherman, Robert J. Sim, George Miksch Sutton.

The photographers represented were: Arthur Augustus Allen, Stanley Clisby Arthur, Guy Andrew Bailey, Ernest Harold Baynes, Leverett White Brownell, Verdi Burtch, Frank Michler Chapman, Howard Henderson Cleaves, William Leon Dawson, Alexander Dawes Dubois, William Lloyd Garrison Edson, Edward Alphonso Goldman, Herbert Keightley Job, Claude Willard Leister, Robert Cushman Murphy, Jenness Richard-

son, Thomas Sadler Roberts, G. R. Salisbury, Hugo Harry Schroder, Robert Wilson Shufeldt, Henry Emerson Tuttle, Edward Royal Warren, Frank Alexander Wetmore, Frank Nunn Whitman.

The historical exhibit held in connection with that of the modern pictures comprised chiefly sets of illustrations of the Great Auk and of the Bald Eagle. The latter set was supplemented by coins, seals, coats-of-arms and other representations of eagles, conventionalized or not, used now or in the past by the Federal Government. A few of the most ancient bird pictures were also shown.—W. L. McAtee.